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University of Missouri-St. Louis

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UNIVERSITY OF MISSOURI-ST. LOUIS
VOL. II - Institutional Profile

NORTH CENTRAL ASSOCIATION ACCREDITATION SELF-STUDY 1971-1972
UNIVERSITY OF MISSOURI -
ST. LOUIS

NORTH CENTRAL ASSOCIATION ACCREDITATION SELF-STUDY
1971-1972

VOL.II - Institutional Profile:
Part I: Institutional Purpose and Projected Development

December, 1971
NORTH CENTRAL ASSOCIATION ACCREDITATION
SELF-STUDY

INSTITUTIONAL PROFILE: INSTITUTIONAL
PURPOSE AND PROJECTED DEVELOPMENT

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INSTITUTIONAL PURPOSE AND PROJECTED DEVELOPMENT

I. Institutional Purpose

The University of Missouri - St. Louis is: (1) a state university, (2) an urban university, (3) one campus in a four campus state-wide university system, (4) part of a Land-Grant university, and (5) a nonresident campus. These characteristics define broadly its mission and purpose, serve as guide-posts in determining the direction of its development, and act as criteria against which its progress, its difficulties, and its limitations may be measured.

Because it is a campus of the State University, the University of Missouri - St. Louis has the responsibility of providing quality education at moderate cost to all eligible students who wish to enroll, and who possess the ability to obtain a degree. It dictates an equal concern and interest in both a broad and comprehensive program of undergraduate education designed to meet the needs of the State's college bound population, and a graduate and professional program also designed to serve the needs of our particular constituency.

As an urban campus, we have a responsibility to provide educational programs appropriate to the metropolitan environment and the urban society from which our students come, and to which they will, in large measure, return. In addition, we must be concerned with the problems of the metropolitan area, and we must make available to the community the special competence and expertise of our faculty to provide meaningful assistance in solving the actual problems which confront St. Louis.
As one campus in a State-wide University System, we have the responsibility of integrating our programs with those of the other campuses. We must both avoid unnecessary and expensive duplication, and also provide a curriculum sufficiently comprehensive and varied to meet the educational needs of this metropolitan area, keeping in mind that many students, both graduate and undergraduate, could enroll at no other institution.

As inheritors of the Land-Grant tradition, we must adjust this great historic and unique American development to the needs of an urban society. This embraces the necessity of providing opportunities for advanced and continuing education for post-college age citizens, as well as transmitting the educational and professional programs and expertise of the campus beyond its boundaries, and into the various geographical, economic, and sociological segments of the metropolitan area.

As a nonresident campus, we are forced to deal with the whole array of problems connected with the commuter student: transportation, parking, time devoted to jobs, absence of campus atmosphere which residence halls provide, etc.

The major problems and limitations of this campus are: (1) lack of adequate facilities, (2) youth, (3) rapid growth, (4) insufficient breadth of programs, particularly at the graduate level.

There is little doubt that our most critical problem is the inadequacy of specialized physical facilities. This generates severe complications in every area of the University community. It includes inadequate library, insufficient lounging and recreational space, shortage of administrative office space, a virtual absence of facilities for extracurricular student programs,
lack of study space for students. Buildings now being completed will, however, provide some relief from present difficulties as of 1972. We have placed adequate library resources at the top of our list of priorities for 1972-73, and we are making significant gains in providing the funds necessary to build its holdings to desired standards. This is a problem which time and continued emphasis will solve.

The youth of the campus, along with its rapid growth, confront us with a less obvious, but equally significant, problem. Until the fall of 1965 we were, in effect, a junior college and we awarded our first baccalaureate degrees in June, 1967. The approximately 600 students enrolled in 1963 have grown to more than 10,000. Each year has brought us a large increase of new students and new faculty, amounting at times to a considerable majority of the total. This has made it all but impossible to establish an institutional identity, has made difficult a real consensus regarding unity of purpose, and has inevitably confronted us with morale problems among both students and faculty. To summarize briefly, we have been until recently so preoccupied with the present that we have had little time until three years ago to consider in any specific or very realistic manner the long range objectives of the campus. Because we have had no tradition, we have inherited a multitude of varied traditions, and we have lacked the kind of stable environment which an older institution possesses. Three years of concentrated planning has gone far toward ameliorating this situation. Present University-wide efforts to develop unique role and scope statements for each campus will be of further assistance.

An additional problem arises from the fact that our student body is totally nonresident. This limits our student body to those who live in St. Louis
and the surrounding counties. Educationally, this places us at a disadvantage, and we need very badly some resident facilities to provide our academic community with a broader and more cosmopolitan base. Until we have these, our only recourse is to continue the policy of drawing students from as broad an area as possible within a driving radius of the campus, and we have been reasonably successful in accomplishing this. In 1968-69, undergraduates from every metropolitan area high school were enrolled on campus. The addition of a graduate dimension has begun to add a cosmopolitan flavor, and will continue to do so.

II. Projected Development

The original purpose in establishing the University of Missouri - St. Louis was to provide university-type upperclass work for students who had graduated from the junior colleges in the St. Louis metropolitan area, enabling such students to complete undergraduate degree programs. The purpose was considerably broadened by the State Commission on Higher Education which concluded in its First Coordinated Plan for Higher Education (September 1966) that all four campuses of the University of Missouri System should be assigned the primary mission of providing undergraduate, graduate, and professional training. The Commission recommendation was consistent with the developing demands and requirements of the St. Louis metropolitan area which argued for speedy inauguration of graduate and professional programs.

Subsequent to the issuing of the Commission Plan, the four campuses of the University were charged with the task of defining ten-year projections for campus development in graduate and professional programs. The University of Missouri - St. Louis completed its portion of the overall plan in early
fall 1968 (see Appendix A). The campus plan called for establishment of comprehensive graduate programs at the master's and doctoral levels in most traditional academic disciplines as well as in professional areas such as Business Administration, Education, Social Work, Allied Health Sciences, Fine Arts, Engineering, and Law. This phase of campus development was to be completed by 1978. The campus plan in its general outline was substantially incorporated into a long-range planning document of the four campuses of the University adopted in November, 1968 (see Appendix B).

In subsequent months it became clear that a number of the assumptions underlying the University's planning document - assumptions which had developed out of University experience during the sixties - might not be appropriate for the seventies. There was increasing question whether state universities would continue to enjoy the large annual budget increases they had enjoyed in the sixties. There was question whether the very rapid rates of growth in college enrollment which had characterized the sixties would be sustained. Above all, it seemed doubtful that the demand for doctorally-trained personnel - a demand which had reached crisis proportions in the sixties - would remain strong given the large increases in doctoral production throughout the country.

Early in 1971 the University initiated a second re-examination of its mission and functions. A preliminary document was prepared, Preface to Decision (see Appendix C). The document was designed to serve as a foundation for a subsequent review of University programs and policies. The document included broad conclusions on the University's mission, its program, its resources, its organization and governance. It included also broad recommendations concerning the development of undergraduate and graduate programs.
In the fall, 1971, a comprehensive review of University programs was begun. As a first step, each campus prepared a very brief general statement of the role and scope of programmatic activity the campus defined as appropriate. In early December, 1971, these statements were reviewed by the President of the University who suggested a single tentative outline for campus development as the basis for further discussion. By February, 1972, it is projected that this tentative statement will be reviewed and a final definitive statement completed. It is anticipated that the statement will present a specific plan for program activity for each of the four campuses of the University.

At the same time, a process for evaluation of all University programs on all four campuses was begun. Evaluation teams are to be designated for each professional and academic area or discipline and are to recommend to the President and his Academic Planning Committee the most appropriate mode for offering a program and steps the University might take to improve its quality. Although the evaluation will not be completed until 1974, the first stage is to be carried out in spring, 1972. The first stage will include a review of the following areas:

- a. Engineering Sciences  
- b. School of Education  
- c. Biological and Health Sciences  
- d. Chemistry  
- e. Geology  
- f. Mathematics  
- g. Physics  
- h. Psychology

Materials concerning the review of campus mission and the evaluation of programs are included in Appendix D.
APPENDIX A

Report and Recommendations of the Long-Range
Planning Committee

University of Missouri - St. Louis

September, 1968
A major development of twentieth century higher education has been the establishment of the publicly supported urban university. This trend is an educational benchmark comparable to the creation of the land-grant institutions of the nineteenth century. It rests upon the premise that the university should be taken to the people rather than forcing the people to go to the university. The people of Missouri have subscribed to this concept with the creation of the University of Missouri at St. Louis--an institution of higher education located in the midst of Missouri's largest metropolitan area, readily accessible to those who desire its services, sensitive to the needs and problems of the urban laboratory which is its environment, and eager for that kind of interaction which will mutually benefit the urban community and the University.

The University believes that education is an experience which will enhance the worth and dignity of its participants, and which will liberate society from ignorance, superstition, and prejudice. To this end it will promote and defend full inquiry and open debate among its students and faculty.

The University accepts its responsibility for the preservation, discovery, creation and dissemination of knowledge. In order to perform its assignment at that level of quality which the people of St. Louis and all of Missouri deserve, the University will constantly and aggressively strive to achieve the kind of national prominence and visibility which can derive
only from excellence of program and faculty.

The University of Missouri at St. Louis exists: (1) To provide moderate cost education for those students who evidence an ability to meet the requirements established for the baccalaureate and higher education degrees; (2) To bring quality graduate and professional education to St. Louis for those who cannot or do not wish to leave the urban area; (3) To encourage research which is the necessary adjunct of such education and which responds to the problems, needs, and opportunities of an urban setting; (4) To provide an opportunity for advanced and continuing education for the citizens of the metropolitan community.

The University will engage in continuous self scrutiny to ensure that it accomplishes these objectives through efficient, economical and innovative avenues. It will join with any individuals, groups, or institutions whose interests and purposes are complementary to those of the University. It is the ambition of the University of Missouri at St. Louis that the people of Missouri will be challenged by its presence, pleased with its service, and willing to provide that support which is the necessary concomitant of academic excellence.

ENROLLMENT PROJECTIONS

The most valid data presently available indicate a pressing need for a constantly expanding offering of undergraduate course work at the University of Missouri at St. Louis. Annual supply of potential entering freshmen from St. Louis County alone is expected to increase from approximately 10,000 in 1967, to 14,760 in 1978. The same general trend will
occur in number of students from St. Charles County. Assuming that this campus will receive a fairly constant share of this group; and the number of students annually from St. Louis City Schools, is stable at approximately 225, and further, that the number of students from parochial schools will increase only slightly from an assumed figure of 500, undergraduate enrollment alone is expected to increase from a head count in both the Day and Evening of 8,250 in 1968, to a head count of 16,300 in 1978. This very conservative projection rests upon several assumptions. Namely, that the building program is able to meet the demand; that all Missouri high school graduates who rank in the upper half of their class will be admissible; that out-of-state freshmen will be limited to those coming from counties adjacent to the St. Louis metropolitan area and to the upper third of their graduating class; that the present retention rate of returning students will be maintained; and that the number of parochial schools will not increase. These projections are also based upon the assumption that no dormitories will be built during the period, however, as will be seen elsewhere in this report, this Campus proposes to provide dormitories for between 15 and 20 percent of the students, to provide at least part of the student body with the full intellectual stimulation which residence on the campus provides. The projected enrollment will probably increase if dormitories are provided. These projections do not take into consideration any increase in student enrollment due to the establishment of professional schools during the period. The demand data relating to professional schools are discussed elsewhere in this report.

UNDERGRADUATE WORK

In order to broaden the educational offerings to undergraduate
students, this Campus plans to create several new departments and schools during the next ten years, and also to increase the number of course offerings from existing departments. The new departments are discussed in more detail elsewhere in this report.

GRADUATE WORK

The Missouri Commission on Higher Education in a statement adopted on November 28, 1966, announced that it was:

"...Convinced that a top priority need in Missouri higher education is graduate school development. In particular, evidence indicates a critical lag at the doctoral and similar levels, along with necessary supportive research. "Since the University of Missouri is presently the only institution in the public sector with a base for doctoral level work of high quality, it is therefore the logical course to concentrate expansion and improvement efforts at this institution. "Statistical data reveal that all Missouri institutions, public and private combined, have been granting only about half as many Ph.D.'s and like level degrees as needed by Missouri colleges and universities for faculty expansion and replacement. In addition, government and industry require increasing numbers of such highly trained and educated men and women...."

This body also recommended in its First Coordinated Plan for Missouri Higher Education in September, 1966, that the role of all campuses of the University of Missouri include as first priority the offering of all doctoral and professional work beyond that now found in education-business within the
Further, if the University of Missouri is to achieve national visibility, it must develop quality graduate programs in a wide range of disciplines on all campuses of the System.

**FIRST PRIORITIES**

Of first priority in the next ten years is the establishment as soon as possible of a graduate school at the University of Missouri at St. Louis and the rapid development of graduate programs to the doctoral level in all presently existing disciplines and in other areas to be instituted. The most pressing immediate need is for graduate work at the Master's level in Education particularly in the fields of Curriculum and Instruction, Administration, Guidance and Counseling, Special Education, and Higher Education; and in Business in the fields of Finance, Accounting, Marketing and Management, however, both of these schools require considerable support from the departments in Arts and Sciences.

**SCHOOL OF EDUCATION**

Most recent studies, based on questionnaires completed by the school districts in St. Louis City and County indicate a need for approximately 1500 additional teachers, both elementary and secondary, and for approximately 300 additional certified personnel in the areas of Administration, Counseling, and Education Specialists requiring advanced education beyond the masters level, by 1970. By 1973, these requirements will increase to approximately 2800 and 400 respectively. If we are to serve the needs of the St. Louis metropolitan area, it appears imperative that the University of Missouri at St. Louis establish the necessary graduate programs in Education
as quickly as possible. It will also be necessary to develop rapidly graduate programs in disciplines which are in greater demand. Presently, considerable demand is for work beyond the baccalaureate degree for teachers of History, English, Mathematics and Science.

SCHOOL OF BUSINESS ADMINISTRATION

The University has received a large number of requests for graduate work in Business, leading to the Master of Business Administration, particularly from potential Evening College students. These demand data indicate that a program leading to a Masters in Business Administration would serve at least 70 students in the Evening College by the fall of 1969; and by the fall of 1970, 100 in the Evening and 35 in the Day Division. These data indicate that we should move as rapidly as possible into graduate work in Business, particularly in the Evening College.

URBAN STUDIES, INTERNATIONAL STUDIES, COMPUTER SCIENCE, SOCIAL WORK

In connection with the development of the graduate program, the University of Missouri at St. Louis plans to emphasize urban studies by establishing a School of Urban Studies offering degree work in cooperation with the College of Arts and Sciences, leading to a Master's level degree in Urban Studies; a program in International Studies, developing ultimately into a School of International Studies and a program in Data Processing.

SCHOOL OF URBAN STUDIES

The need for a program in Urban Studies in the St. Louis area is almost self-evident. City planners whom we have consulted agree that St. Louis is a
natural area for the establishment of a School for Urban Planning. Nationally, the need for trained planners far outstrips the supply, and in the face of growing concern for urban problems, the need for programs directed toward the solution of these problems is becoming increasingly critical.

As the only tax supported University located in the state's largest metropolitan area, this campus has a unique responsibility to provide leadership and assistance in working toward a solution of the myriad number of urban problems besetting this area.

We intend to establish specific programs which will be of tangible benefit to the metropolitan area. In addition, we intend to develop the program in such a way that it will soon qualify for large federal grants in this field of endeavor.

We intend to strengthen our research and teaching programs in urban problems, using every available facility and the wisdom of every member of the UMSL faculty.

INTERNATIONAL STUDIES

Today, young men and women in the United States have educational needs drastically different from those of previous generations. They live in a more varied, complex, and rapidly changing world which demands more and more rapid solutions to problems embracing wider geographical areas. Unless these young people learn about other peoples, their values, their problems and aspirations, they will be unable to cope with the massive array of challenges
posed by a pluralistic world. To provide these young people with the opportunity to learn these things, we recommend the establishment of the University of Missouri Center for International, Foreign Area and Comparative Studies on the campus of the University of Missouri at St. Louis, with a Coordinate Center located on each of the four campuses.

The Center should involve faculty of all campuses, either directly or indirectly, and should direct its efforts toward coordinating programs; help identify areas of relative emphasis on each campus; and serve as a focal point for all kinds of international activities in other educational institutions and work closely in a service or advisory role with lay organizations concerned with international affairs.

There are several reasons for locating this Center at St. Louis. First, St. Louis, as Missouri's most important economic region, looks to international markets in substantially greater measure than any other part of the State. Second, St. Louis is an excellent focal point for international transportation and communication, and will doubtless become even more important in this role. Third, the combined resources relevant to international studies exceeds those available elsewhere in the State. Local interest in world affairs is substantial. Educational Television, in its international aspect is making progress in St. Louis, and news media give broad coverage to international developments. Thirteen foreign governments maintain Consulates in St. Louis. The concentration of library and academic resources in St. Louis is the most extensive in Missouri. Finally, St. Louis as a city, provides a highly attractive living and working environment with a variety of social, cultural, and recreational offerings found only in a
cosmopolitan U.S. city.

The Center located in the St. Louis campus will eventually, we hope, develop into a degree granting School of International Studies. This transition should take place in 1971 or 72.

DEPARTMENT OF COMPUTER SCIENCES

Demand data from businesses in the St. Louis area and from interested individuals indicate strongly that there is a need for a program in Computer Sciences leading eventually to the Masters Degree. The emphases of this program will be twofold: (1) to train systems analysts, and (2) to provide a sound academic program in Computer Sciences. There is also a strong internal need for a program of computer sciences to assist in the research operations of the various disciplines on the campus and to provide desired services to agencies within the metropolitan area. To help fulfill this need we propose to create, in 1969, a Department of Computer Sciences offering work to the master's level by 1971 or 1972.

SCHOOL OF SOCIAL WORK

According to the Occupational Outlook Handbook 15,000 new social workers will be required each year through 1975 to meet the needs of the Nation. There is little likelihood that this volume of manpower can be supplied through existing institutions. The State of Missouri has three graduate schools of social work which, on November 1, 1964, had a total full-time enrollment of 378 students. The need for social workers is disproportionately greater in urban areas than in rural areas and in metropolitan areas such as St. Louis the need far outstrips the supply. Vacancies for social workers exist in many
specialty areas, including family service, child welfare, etc. Though St. Louis has two schools of social work, only 253 full-time students were enrolled. The tuition at these schools is relatively high and serves to prevent those most interested in this field from receiving this training. A School of Social Work at the University of Missouri at St. Louis would help considerably in providing the badly needed manpower.

**CRITERIA**

Within the framework established by the above discussion, we propose to develop graduate programs in progressive stages starting in the fall of 1968. In the selection of disciplines to start graduate work, two basic criteria have been used, namely, the readiness of the department or school to enter graduate work, in terms of faculty, library, and resources, and second, the need of the metropolitan area for the graduate degree.

**SCHEDULE**

In the fall of 1968, we propose that the University of Missouri at St. Louis take over in its entirety, the graduate program in Education presently being handled here in all phases except admission and award of degrees. This change would require little in the way of additional expense, inasmuch as it would necessitate only the creation of the necessary graduate administrative structure, including a Dean and his supportive staff.

In the fall of 1969, we propose that the University of Missouri at St. Louis begin graduate work at the Master's level in Economics, English, Business, Mathematics, Sociology, Physics, History, Political Science and Urban Studies.
These disciplines have been selected primarily because of the demonstrated need for them in connection with the field of Education and Business, and because of their direct connection to the development of Urban Studies. Further, teaching staff of these disciplines are completely competent to direct graduate work, each of the departments possessing staff who have already directed such work. All of these staffs are more than adequately productive of meaningful research in their fields.

Also in the fall of 1969, we plan to begin graduate work at the doctoral level in Psychology, Biology, and Chemistry. Psychology was selected primarily because of staff competence and experience in research and in directing doctoral level graduate work. The Psychology faculty has one member, Professor Irion, who has had extensive experience in teaching and thesis supervision at the graduate level. He has served as director (or co-chairman) of 18 Master's thesis and 22 Ph.D. dissertation projects, and has taught 59 students exclusively at the graduate level and 654 students in courses carrying graduate and undergraduate credit in the past five years. Professor E. Howe has taught approximately 20 doctoral students in the past three years, has supervised 1 Master's thesis and served on 3 Ph.D. dissertation committees. Professor Fred Thumin has taught several hundred graduate students, has directed 4 Master's thesis projects and served on 6 Ph.D. dissertation committees. He has also supervised the counseling practice of 12 graduate students. Professor Alan Krasnoff has served on 6 Ph.D. dissertation committees, including one which he directed through the planning phase before resigning to join the staff at UMSL. He has taught approximately 25 students in master's level course work and has supervised at least 20 doctoral students in clinical activities.

Psychology was also selected for doctoral work because of the pressing
national need for Ph.D. level Psychologists. The most recent studies indicate that by 1970, the nation will need between 15,500 and 17,500 new Ph.D.'s in Psychology and that the total output at that time will be approximately 9,000. Though the number of fields offered for graduate work in psychology will undoubtedly increase as the department develops over the next decade, the capabilities of the present staff and those to be hired in the next two years indicate an initial emphasis in the fields of general experimental psychology and clinical psychology.

The Department of Biology was selected for doctoral work in 1969, primarily because of its outstanding strength in molecular biology. Only one faculty member, Professor Moyer, has had experience directing graduate work to the doctoral level, however most of the members of the department have research visibility and have shown a definite ability to attract outside funds for research. By May of 1968, it is anticipated that 2-3 additional new staff will have had experience directing Ph.D. level research.

The Department of Chemistry was selected for doctoral work primarily because of considerable research ability of the entire staff and their ability to attract outside research grants. The faculty of this department has produced a total of 72 research publications and papers and has secured an impressive total, $80,000 in outside research money. The addition of the Weldon Springs Chemistry Library has provided the Chemistry Department with entirely adequate sources for doctoral work.

The fine undergraduate program now being offered by the Chemistry Department will provide a sound base for graduate work inasmuch as 90% of the graduating senior's in Chemistry are accepted into graduate schools elsewhere.
Initially, the Department of Chemistry will emphasize the areas of organic chemistry and physical chemistry, though this offering will undoubtedly broaden within the next decade.

Each of the three departments selected for doctoral work in 1969 has hired at least one new staff member for the fall of 1968 who has achieved national visibility in his field, and further, each of the departments have made offers to similar type staff and these offers are virtually certain of acceptance for the fall of 1968. There is a firm commitment that, by 1969, each of these departments will have several additional staff members of equal caliber.

Biology and psychology will both be in new facilities in the Life Sciences building by the fall of 1969, and chemistry will occupy the entire science wing of Benton Hall, thus providing all three departments with new and adequate facilities.

In addition to the above, we plan to create, in the fall of 1969, new departments in Speech, Geography, and Police Science and to begin the development of new schools in Allied Health Sciences and Urban Studies. A discussion of the School of Allied Health Sciences appears in the section of this report on Professional Schools.

In the fall of 1970, we do not plan to institute any new masters level work, however, we would plan to devote the year to expanding the masters level work offered in the departments beginning graduate work in 1969. We plan to institute a Ph.D. program in the field of History. The department has now on the faculty or has employed for next year, staff of whom three have directed doctoral work, and by 1970, the major portion of the rest of the
staff will, by their publishing, have demonstrated competence to direct such work. The library resources in history, either on the campus or readily accessible in the area, is extensive.

Also, in 1970, we plan to create a Department of Anthropology and to split the Department of Modern Foreign Languages into a Department of Romance Languages and a Department of Germanic and Slavic Languages.

In the fall of 1971, we plan to institute masters level work in one modern language, (the choice to be based at that time on the readiness of the specific language to go into graduate work and the direction taken by the International Studies Program). In addition, we plan to initiate a M.A. level program in Public Administration and Social Work and to create a School of Social Work. We would plan to institute doctoral level work in Economics, Political Science and Education. Also, in the fall of 1971, we plan to create a Department of Computer Science.

In the fall of 1972, we plan to institute masters level work in a second Language and in Anthropology; to begin doctoral work in Physics, Sociology, and English.

We are planning also in 1972, to create a Department of Art History and to begin a School of Fine Arts.

In 1973, we plan to begin masters level graduate work in Music, in Computer Science, and in Geography; doctoral level work in Mathematics and Business.

In the fall of 1974, masters level work will be staffed in a third Language, and doctoral level work in Philosophy and the Language which began masters level work in 1971.
We would also plan in 1974, to begin a School of Engineering. The rationale for this decision is discussed below.

In 1975, we will begin masters level work in a fourth Language and will institute doctoral level graduate work in the foreign language which began in masters level work in 1972.

SECOND PRIORITY

The second priority in the 10 Year Plan for the University of Missouri at St. Louis is the establishment of a School of Engineering. There is a significant need for education in Engineering in the St. Louis area. This need has been evidenced by the results of a survey of major industries during the summer of 1967, by numerous and increasing inquiries from industry representatives and from individuals over the past three years; by the increasingly high tuition and concentration on graduate level engineering work and restriction of local students by area universities; by the Department of Labor, December 1966 Report on the Current Employment Markets for Engineers, Scientists, and Technicians, which indicate job openings outnumber applicants 5 to 1 in the St. Louis metropolitan area. Current statistics in our freshmen enrollment suggest that over 7% of our incoming students wish to pursue careers in Engineering, even though they realize no program exists on this campus. The largest need depicted by our investigation has been on the undergraduate level in the areas of mechanical, electrical, and industrial engineering, and on the advanced level, in chemical engineering. Education in Engineering, as in other fields, requires supporting disciplines and adequate facilities. It requires a university or campus, and all of the things
this concept implies. The creation of the University of Missouri at St.
Louis recognizes that effective higher education is best offered through
a campus, and to establish continuing education or extension centers,
in the field of Engineering, at the doorstep of a modern, rapidly develop­
ing, aspiring campus, is ambiguous at best. The University of Missouri at
St. Louis includes the establishment of a School of Engineering at this
high priority in its 10 Year Plan to satisfy the need of the area we were
established to serve. This school will be limited by the priorities es­
tablished for other programs on other campuses, and is based on need or
demand only. It is not intended to compete with the well established complex
programs in Columbia and Rolla and would be pursued on the documented
assumption that potential Engineering students are choosing other areas of
study, or dropping from school, rather than choosing other campuses for study.

We would hope to fulfill this plan by establishing a School of Engineering during the school year 1974-75, and to begin offering
courses leading to the baccalaureate degree in Engineering at that time.

THIRD PRIORITY SCHOOL OF ALLIED HEALTH SCIENCES

There is a growing shortage of trained personnel in fields of study
relating to health sciences. These shortages exist in the fields of medical
technology, physical therapy, occupational therapy, medical record library
science, medical illustration, health services management, radiologic
technology, prosthetics and orthotics, inhalation therapy, orthoptics, dental hygiene, dietetics and nutrition. The need for additional trained personnel in many of these areas limits the effective utilization of physicians and dentists. This is particularly true in areas of medical technology, physical and occupational therapy and related fields. In 1966, 3,200 registered medical technologists were active in their profession. In that year the 762 accredited schools of medical technology produced 3,283 graduates. The total production by the 23 accredited schools in Missouri was 109 in 1966. The program established at the University of Missouri Medical Center in Columbia is operating at maximum capacity and is producing 20 B.S. degrees per year.

A 1965 survey of 5,300 hospitals indicated that there were 9,200 unfilled positions for medical technologists. The total national need backlog for professionals is now conservatively estimated at 15,000. Institutions in Missouri presently offer 246 spaces to incoming students per year, considerably below the national norm and totally inadequate to provide personnel for the medical facilities in Missouri alone. A similar imbalance between supply and need exists in the other fields of Allied Health Science.

To assist in meeting this critical need the University of Missouri at St. Louis proposes to establish a School of Allied Health Sciences in the fall of 1969.

FOURTH PRIORITY

The fourth priority in the 10 Year Plan is the establishment of a School of Fine Arts. If we are to provide a complete and unlimited opportunity for the intellectual and cultural development of the inhabitants of the St. Louis metropolitan area, a School of Fine Arts is essential to discover and cultivate
any potential which exists in the field. If at all possible, any potential student of Art or Music should not be denied access to the means of developing his talent because the cost of such programs at any existing institution is prohibitive. We hope, therefore, to offer this education to the baccalaureate level in art and to the masters level in music. Stress will be placed on the field of music simply because there is a lack of any distinguished music degree program in the St. Louis area, whereas other areas of Fine Arts are adequately covered beyond the B.A. degree.

We would plan to establish a School of Fine Arts in the fall of 1972, provided the necessary facilities are completed.

FIFTH PRIORITY

Fifth priority in the plans of the University of Missouri at St. Louis is the establishment of a School of Law. Although there does not appear to be a critical shortage in this profession, the St. Louis Chapter of the American Bar Association feels that there is a need for high quality law school with low tuition in the St. Louis area. The two law schools presently located here are both extremely expensive and this cost clearly militates against this choice of profession for a large number of potential students who cannot afford to leave St. Louis to attend publicly supported Missouri law schools. In addition, the course at Washington University Law School is strongly oriented toward theoretical and constitutional law and a need exists for a school in the area which stresses practical law. We believe that a law school at the University of Missouri at St. Louis will fulfill these needs.

EXTENSION

The plans for the University of Missouri at St. Louis include emphasis
on the development of flexible and sensitive programs in the Extension Division which will reflect the tradition of the land-grant institution to serve the people and develop the State's economy. The program will also reflect the philosophy of the University and the commitment of the faculty to a service program, and will respond to the faith of individuals, business firms and organizations in the value of higher education in solving their problems.

Specifically, the University plans to expand its program in Public Affairs Extension. We have a special opportunity and responsibility as part of the St. Louis metropolitan area to assist in solving the myriad of urban problems. The opportunity this University has by virtue of its location in the midst of a vast urban laboratory will be lost. The major thrust of the program will be toward upgrading public officials in the methods of problem solving and to provide opportunity for these officials to earn credits or certificates in this field.

In addition, the area of Continuing Education for Women will be expanded. Close contact will be maintained with women's organizations to determine needs and interests and to provide educational services to meet the needs of ever increasing demands.

Further, the Business Extension program will be continuously revised to insure that its thrust is toward the improvement of the economy of the State, by providing in-service training to personnel engaged in all phases of industry and business. We will offer credit and non-credit courses, referral services, and short conferences designed to meet needs of the business community and will utilize Extension personnel to provide liaison with the School of Business.
We hope to establish a Center for Learning Resources to develop new efficient methods of communication between this campus and those who are participating in extension courses and to enhance the content of course offerings. This Center will combine research in teaching and learning with specialization in various instructional media, including television, programmed learning, telelecture, etc.

As far as new facilities are concerned, the new J.C. Penney Adult Extension Center should be completed in the fall of 1969, which will house Extension offices and provide facilities for the major portion of Extension activities on campus. Beyond this, we need an off-campus facility which will house 75 to 100 people, complete with dining hall, conference rooms, and recreational facilities. This could be used for off-campus short courses and conferences, faculty workshops, etc. Public or parochial schools could also use this facility for short courses for teaching.

We intend to continue to investigate the most sophisticated equipment available and to use that which can be justified in terms of increasing the participation of the people of Missouri in higher education.

COUNSELING SERVICE

We established a Counseling Office on the campus in the fall of 1966, to provide professional level psychological counseling to the students enrolled here. This service is manned by two clinical psychologists who also teach part-time in the Department of Psychology. In the first year of its operation the counselors clearly provided a needed service to the students. The part-time counselor in the first year, and both part-time counselors, so far this year have had completely full schedules of clients, almost to the point of being
unable to provide adequate services. This service needs to be expanded.

This campus plans to house the service in the Life Sciences Building when it is completed and to add to the personnel until the ratio of counselors to students clients is about 1/1500. At the present time this ratio is about 1/9000. Other changes will be made as experience is gained concerning the special needs, if any, of a non-resident campus.

RESEARCH

Research at the University of Missouri at St. Louis during the ten-year period 1969-70 will surely increase appreciably. Although the internally supported research for the University (which primarily is utilized in the development of younger faculty and the support of projects which are not readily funded from external sources) will surely increase, the research supported by external sources will and must increase considerably in order to develop a distinguished graduate program and research program. This increase in research will be expected to follow the movement of the various disciplines for graduate study and especially to the awarding of the Ph.D. degree.

Aside from the discipline-oriented research, the University of Missouri at St. Louis has focused especially upon three areas of interdisciplinary research that will be developed during the ten-year period. Two of these areas will be closely allied to the development of academic emphasis and graduate programs. These two are Urban Studies and International Studies. There is presently a significant base and commitment at the University to develop research concomitantly with these academic programs with the development of the Center for Community and Metropolitan Studies and the Center for
International, Foreign, Area, and Comparative Studies. These areas of research interest will increase rapidly during the period, and they will be especially enhanced by the addition of graduate programs with urban or international studies emphasis. The third area of interdisciplinary emphasis is Computer Sciences that support the departmental research in the various disciplines.

At the present, research at the University of Missouri at St. Louis is hampered by the lack of development of the library and the computer center. The library will grow in accordance with the ordering by the various departments which is based on teaching and research needs. The computer center should develop to a large scale system by approximately 1973-74. The estimate for the research demand upon the computer center is approximately one-third of the total demand upon the system throughout the projected ten-year period.

SPECIAL SERVICES

In addition to the expansion of the Counseling Service described above, we propose to provide dormitories for a portion of the students beginning as soon as practicable. In his book, The Urban University, Dr. Martin Klotsche stresses the importance of changing the image of the urban university as a computer campus serving only the students in the immediate area. Many such universities are expanding the geographic base of their student body by providing residence facilities on campus. Dr. Klotsche recommends that approximately 20% of the total student body be housed on the campus. Further, the addition of a quality graduate program at the University of Missouri at St. Louis will require housing on campus.
if we are to attract graduate students from areas outside St. Louis.

A critical problem on the campus at St. Louis is parking. Unless the metropolitan area is provided soon with an efficient mass transit system, which seems highly unlikely, we must provide parking facilities for most of our student body. This requirement is made even more critical by virtue of the fact that a majority of our students work, many at full time jobs, and require the use of an automobile to attend classes.

APPENDIX

Attached as Appendix A & B are tables summarizing the above schedules and the building priorities to implement it. Attached as Appendix C is a table showing projected needs for dormitory and parking facilities.
## APPENDIX A
### PLANNING SCHEDULE
**UNIVERSITY OF MISSOURI AT ST. LOUIS**  
**1968 - 1978**

<table>
<thead>
<tr>
<th>Year</th>
<th>Ph.D.</th>
<th>Masters</th>
<th>Depts.</th>
<th>Colleges - Schools</th>
<th>Admin. Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td></td>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biology</td>
<td>Economics</td>
<td>Speech</td>
<td>Allied Health Services</td>
<td>Graduate Dean</td>
</tr>
<tr>
<td></td>
<td>Psychology</td>
<td>English</td>
<td>Geography</td>
<td>Graduate School</td>
<td>Dean, Allied Health</td>
</tr>
<tr>
<td></td>
<td>Chemistry</td>
<td>Business</td>
<td>Police Science</td>
<td>School of Urban Studies</td>
<td>Dean, Urban Studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mathematics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sociology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Physics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>History</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Political Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Urban Studies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1970</td>
<td>History</td>
<td>Expand 1969 programs</td>
<td>Anthropology</td>
<td></td>
<td>Dean, Soc. Work</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1969 programs</td>
<td>Romance Lang.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>German and Slav. Languages</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td>Economics</td>
<td>Language A</td>
<td>Computer Science</td>
<td>Social Work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Political Sci.</td>
<td>Social Work</td>
<td></td>
<td>International Studies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doctor of Ed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX A

PLANNING SCHEDULE  
UNIVERSITY OF MISSOURI AT ST. LOUIS

Page 2

<table>
<thead>
<tr>
<th>Year</th>
<th>Ph.D.</th>
<th>Masters</th>
<th>Depts.</th>
<th>Colleges - Schools</th>
<th>Admin. Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>Physics</td>
<td>Language B</td>
<td>Art History</td>
<td>Fine Arts</td>
<td>Dean, Fine Arts</td>
</tr>
<tr>
<td></td>
<td>Sociology</td>
<td>Anthropology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>English</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>Mathematics</td>
<td>Music</td>
<td></td>
<td></td>
<td>Dean, Engineering</td>
</tr>
<tr>
<td></td>
<td>Business</td>
<td>Computer Sci.</td>
<td>Geography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>Philosophy</td>
<td>Language C.</td>
<td></td>
<td>Engineering</td>
<td>Dean, Law School</td>
</tr>
<tr>
<td></td>
<td>Language A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1975</td>
<td>Language B</td>
<td>Language D</td>
<td></td>
<td>Law</td>
<td></td>
</tr>
<tr>
<td>1976</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1977</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td></td>
<td></td>
<td>Engineering</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Colleges - Schools

- Fine Arts
- Engineering
- Law
# APPENDIX B

## BUILDING SCHEDULE

<table>
<thead>
<tr>
<th>Priority Number</th>
<th>Building</th>
<th>Cost</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Physical Sciences (or)</td>
<td>$5,500,000</td>
</tr>
<tr>
<td></td>
<td>(1) Physical Sciences (and)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2) Chemistry</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Maintenance &amp; Warehouse</td>
<td>$500,000</td>
</tr>
<tr>
<td>3</td>
<td>Education</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>4</td>
<td>Fine Arts, Speech, &amp; Dramatic Arts</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>5</td>
<td>Library, Phase II</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>6</td>
<td>Student Services</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>7</td>
<td>Psychology</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>8</td>
<td>Urban Studies</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>9</td>
<td>Maint. &amp; Warehouse Bldg. #2</td>
<td>$750,000</td>
</tr>
<tr>
<td>10</td>
<td>Engineering (Eventually Electrical)</td>
<td>$3,500,000</td>
</tr>
<tr>
<td>11</td>
<td>Business or Social Science Addition</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>12</td>
<td>Library, Phase III</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>13</td>
<td>Graduate &amp; Research</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>14</td>
<td>Graduate Science #1</td>
<td>$4,000,000</td>
</tr>
<tr>
<td>15</td>
<td>Student Center Annex</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>16</td>
<td>English &amp; Philosophy</td>
<td>$2,500,000</td>
</tr>
<tr>
<td>17</td>
<td>Health Sciences</td>
<td>$3,500,000</td>
</tr>
<tr>
<td>18</td>
<td>Engineering - Civil &amp; Mechanical Law</td>
<td>$3,500,000</td>
</tr>
<tr>
<td>19</td>
<td>Maintenance &amp; Warehouse #3</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>20</td>
<td>Women's Gymnasium</td>
<td>$2,500,000</td>
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<tr>
<td>21</td>
<td>International Studies</td>
<td>$2,000,000</td>
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<tr>
<td>22</td>
<td>Graduate Science #2</td>
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</tr>
<tr>
<td>23</td>
<td>Computer Science</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>24</td>
<td>Social Work</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>25</td>
<td>Auditoriums</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>26</td>
<td>Adult Education</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>27</td>
<td>R.O.T.C.</td>
<td>$1,500,000</td>
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</tbody>
</table>

**TOTAL** \( \$71,250,000 \)
APPENDIX C
UNIVERSITY OF MISSOURI
AT ST. LOUIS

Dormitory Spaces and Parking Needed Based
On F.T.E. Day Enrollment Projections (10/2/67)

<table>
<thead>
<tr>
<th>Year</th>
<th>Day Head Count</th>
<th>F.T.E.</th>
<th>Day Based on 15%</th>
<th>Day Based on 20%</th>
<th>Parking Spaces Based on .5 F.T.E. Day</th>
<th>Parking 10% F.T.E. Day</th>
<th>Total Parking Spaces Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968</td>
<td>5,800</td>
<td>5,690</td>
<td>854</td>
<td>1,138</td>
<td>2,845</td>
<td>569</td>
<td>3,414</td>
</tr>
<tr>
<td>1969</td>
<td>6,860</td>
<td>6,540</td>
<td>961</td>
<td>1,308</td>
<td>3,270</td>
<td>654</td>
<td>3,924</td>
</tr>
<tr>
<td>1970</td>
<td>7,760</td>
<td>7,200</td>
<td>1,080</td>
<td>1,440</td>
<td>3,660</td>
<td>720</td>
<td>4,320</td>
</tr>
<tr>
<td>1971</td>
<td>8,000</td>
<td>7,320</td>
<td>1,098</td>
<td>1,464</td>
<td>3,660</td>
<td>732</td>
<td>4,392</td>
</tr>
<tr>
<td>1972</td>
<td>8,400</td>
<td>7,600</td>
<td>1,140</td>
<td>1,520</td>
<td>3,800</td>
<td>760</td>
<td>4,560</td>
</tr>
<tr>
<td>1973</td>
<td>8,900</td>
<td>8,110</td>
<td>1,217</td>
<td>1,622</td>
<td>4,055</td>
<td>811</td>
<td>4,866</td>
</tr>
<tr>
<td>1974</td>
<td>9,450</td>
<td>8,595</td>
<td>1,289</td>
<td>1,719</td>
<td>4,297</td>
<td>860</td>
<td>5,157</td>
</tr>
<tr>
<td>1975</td>
<td>10,250</td>
<td>9,340</td>
<td>1,401</td>
<td>1,868</td>
<td>4,670</td>
<td>934</td>
<td>5,604</td>
</tr>
<tr>
<td>1976</td>
<td>10,975</td>
<td>9,870</td>
<td>1,480</td>
<td>1,974</td>
<td>4,935</td>
<td>987</td>
<td>5,922</td>
</tr>
<tr>
<td>1977</td>
<td>12,200</td>
<td>11,125</td>
<td>1,669</td>
<td>2,225</td>
<td>5,562</td>
<td>1,112</td>
<td>6,674</td>
</tr>
<tr>
<td>1978</td>
<td>13,075</td>
<td>11,930</td>
<td>1,790</td>
<td>2,386</td>
<td>5,965</td>
<td>1,193</td>
<td>7,158</td>
</tr>
<tr>
<td>1979</td>
<td>13,975</td>
<td>12,780</td>
<td>1,917</td>
<td>2,556</td>
<td>6,390</td>
<td>1,278</td>
<td>7,668</td>
</tr>
<tr>
<td>1980</td>
<td>14,700</td>
<td>13,390</td>
<td>2,009</td>
<td>2,678</td>
<td>6,695</td>
<td>1,339</td>
<td>8,034</td>
</tr>
</tbody>
</table>

NOTE: As Additional Buildings are Constructed Much of the Temporary Parking Now Available Will Be Lost.

Fall
1967   4,394  4,254  1,852  328  2,180
APPENDIX B

Long-Range Planning

University of Missouri

November, 1968
This is a plan outlining the proposed development of the University of Missouri through the next 10 years. The discussion includes the general organization of the four-campus University, its responsibilities as the only state supported university-type educational institution in Missouri, the roles to be filled by the individual campuses, and an assessment of the needs of the various disciplines and divisions as the University responds to constantly increasing demands. The primary objective is to provide guidelines within which each of the four campuses and the University-wide administration can develop specific programs including detailed costing.

This plan constitutes the first step in a continuing process of thinking and planning that involves the faculty, the students, and the administration. The principal responsibility of the University is to provide the best possible university-type education to students at all levels and in all walks of life. The planners will constantly keep this principle in mind.

The material presented here has been under consideration for approximately two years. General guidelines for its development have been provided by a committee consisting of the four Chancellors and chaired by the Vice President for Research and Graduate Studies. Each campus developed its own plan by the committee system. In addition, University-wide committees were appointed in each discipline to consider statewide problems and to formulate plans in their particular areas. Reports from all of these participants were then condensed into a single document, and this document was extensively reviewed by all contributors.

The University of Missouri is a large and complex institution. It presently enrolls more than 40,000 students on its four campuses, and the projected enrollment in 1977-78 is about 76,000 students. Graduate enrollment at present is 5,279, and is projected at 18,600 (an increase of 252 percent) by 1977-78. A large increase in demand for work in continuing education is a certainty, and both undergraduate and graduate enrollment will maintain steady and increasing pressures. Meeting these projected requirements in higher education will tax the ingenuity of and require the maximum effort by the University staff.

The University of Missouri bears a major responsibility in providing leadership and service in the field of higher education. This responsibility requires constant effort to modernize, make more relevant, and upgrade the undergraduate curricula. The competence of the teaching and research staff, the real backbone of the University, must be maintained and improved. Increasing attention must be paid to graduate studies, the most expensive phase of higher education. There is great demand for highly trained people in almost all professions. The statewide extension and continuing education program, nationally known for leadership in the field, will experience enormously increased demands for its services during the next decade.

The building of a nationally prominent state university, whose components are four campuses with highly dissimilar characteristics, is a large undertaking. For the undertaking to be successful, the planning must be intelligent and imaginative. This is the function of the University. It is only through the careful formulation of plans that the University can make the best use of the resources made available by the citizens of Missouri. A great state university can grow with this dual and complementary support.
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PLANNING RATIONALE

At a time when "comprehensive planning," "systems analysis," and "program-planning-budgeting" have permeated much of our organizational life, it is hardly necessary to explain the need for and the function of planning. However, institutions of higher education and particularly the University of Missouri have some unique planning characteristics which should be described.

A commercial concern is operated for profit, and its planning efforts are centered on maximizing net income. While a state university is clearly a heavy yielding investment which society makes in its future, it is a non-profit organization and its objectives are more varied and complex. Basically, a state university’s planning activities must be focused on two areas: (1) the establishment of goals, and (2) the ways and means of attaining those goals through the most efficient possible use of the resources made available to higher education. More specifically, the University of Missouri has channeled its planning activities into the following significant areas:

- The development of guidelines so that coordinated campus plans can be prepared and costed in considerable detail. Two assumptions are inherent in this development:
  - Planning will be a continuous process, and
  - The overall master plan of the University will be an integrated composite of the four campus plans.

- The provision of integration and coordination of educational programs so that the attainment of intermediate objectives may be facilitated. These objectives include the following:
  1. A satisfactory system of credit transfer among the four campuses and a cooperative system that will facilitate transfer of credits from junior, community, and other state colleges to the University.
  2. The accommodation of increasing enrollments.
  3. A feasible method of steadily upgrading the quality of instruction.
  4. The evaluation of new teaching media and the early adoption of those found to be practical and well conceived.
  5. The introduction of new and combinations of existing fields of knowledge into the teaching and research programs.
  6. A system so devised that faculty with superior or unique knowledge and skills, and expensive but unique research equipment and library resources, may best serve the total University while based on a single campus.
PLANNING GUIDELINES

The University of Missouri has developed its 10-year plan in accordance with a number of guidelines which experience indicates will result in the kind of institution of higher education needed and demanded by the citizens of Missouri. Many of these guiding principles have so often been stated as to become commonplace and universally accepted and need not be detailed in this document. However, for clarification and emphasis, the following guidelines do need to be explicitly stated:

- The planning is focused on the development of a distinctive and distinguished public university-type institution of higher learning as a statewide unit. To this end, the capabilities and competencies of the four campuses will be fully integrated and coordinated as a single university.
- Consequently, the principal goals are the education and social and cultural growth of the individual student at all academic levels. This education should relate to the last third of the 20th century, and should be so structured as to take full advantage of the uniqueness of Missouri and its educational institutions.
- In accordance with land-grant philosophy, all qualified Missouri residents should have the opportunity of attending the University of Missouri. For this reason, it does not appear wise to place artificial limitations on total enrollment at the University of Missouri. As there is no general agreement as to the best size for an individual campus, enrollment limitations on campuses are also without acceptable foundation. Projected future enrollments in the University may be calculated from estimates of:
  1. The number of graduates from Missouri high schools.
  2. The percentage of high school graduates who will seek admission to all Missouri institutions of higher education.
  3. The number of non-residents who, it seems likely, will enroll in the University.

The University accepts the B-2 projections presented in Population and Higher Education in Missouri 1960-1975 by Rex R. Campbell, December, 1967, as approximations that are reasonable for planning purposes. It is understood that the data and projections in the Campbell report are to be updated from time to time, which will make it possible to feed significant adjustments into the planning process of the University.

- New educational programs within the University may be started only after careful evaluation of the need for the programs and the level of support for existing programs. The University does not, except in most unusual circumstances of demonstrated need, aspire to develop new educational programs until all existing programs for which demand can be established have attained an acceptable level of quality, and then only if funding the new program does not deprive current programs of essential support.
- All existing courses of instruction within the University must maintain an acceptable level of usefulness or be eliminated.
- Because the University is an organization undergoing continuing change as it adapts to the shifting demands of the population it serves, time phasing of its master plan must remain flexible. For example, the University does not anticipate the need to activate a school of architecture during the next 10 years because the limited present need can be more adequately met through inter-university arrangements. Nevertheless, a radical change in the intensity of demand could alter this timing.

- The educational services of the University should be distributed geographically in a manner that will minimize the combined costs of providing instructional services and those incurred by students receiving the education.
- The University of Missouri should work cooperatively with all other institutions of higher education within the state, so that an effective and comprehensive total educational system may develop.
Enrollment at the University of Missouri is expected to more than double within the next decade.

The increase in full-time equivalent (FTE) enrollment is estimated at about 112 percent—from 35,849 in 1967 to 76,000 in 1978. The increase in graduate enrollment is expected to be about 252 percent—from 5,279 in 1967 to 18,600 in 1978.

Total enrollment increased 80 percent between 1962 and 1967.

EARLY GROWTH AND STRUCTURE

In 1839, seventeen years after Missouri became a state, the University of Missouri was established at Columbia, and it thereby became the first state university west of the Mississippi River. Originally, the University offered a classical curriculum of four years of study in liberal arts, although instruction in medicine was offered as early as 1845 and courses in civil engineering in 1849. In 1869 the Normal College, predecessor of the College of Education, was established, and one year later women were admitted to this college. The College of Agriculture and Mechanic Arts was established in 1870 and the School of Law in 1872.

The University remained a single campus institution until 1870, when the University of Missouri School of Mines and Metallurgy was established at Rolla. For the next 93 years, the University of Missouri expanded and developed its educational and research programs on these two campuses.
Schools of Engineering, Journalism, Nursing, Medicine, Veterinary Medicine, Business and Public Administration, Forestry, and Home Economics were established; the Graduate School was created; and the Extension Division was organized. Two new campuses were added in 1963—in Kansas City the private University of Kansas City became a campus of the University of Missouri, and in St. Louis an entirely new campus was established. The 1967 fall semester full-time equivalent enrollment of the four-campus University of Missouri was 35,849 students.

As provided by the state constitution, the University of Missouri is governed by a Board of Curators composed of nine members appointed by the Governor of the State of Missouri. The President of the University is the chief executive officer and the chief academic officer; he is directly responsible to the Board of Curators for the operation of the University and for its academic programs. Eight University-wide officers report directly to the President. These officers are: (1) Vice President for Administration, (2) Vice President for Academic Affairs, (3) Vice President for Research and Graduate Studies (to be phased out in 1969, with responsibilities transferred to Vice President for Academic Affairs), (4) Vice President for Extension, (5) Comptroller, (6) Business Manager, (7) Vice President for University Development, (8) Director of University Information Services. There are four Chancellors, one on each campus, who report directly to the President and are the chief administrative heads and academic officers of the four campuses. All campus officers concerned with campus programs and functions report to and are responsible to their respective Chancellors.

Thus, there are two levels of University administration. University officers are responsible for assuring that University policies are made effective and for maintaining University coordination. Campus officers are responsible for carrying out University policy on the campuses under the direction and coordination of the President of the University and his staff. To encourage the close cooperation and communication between University and campus staffs essential in carrying out these responsibilities, each Chancellor and each University officer have developed procedures designed to maintain lines of effective communication among members of their respective staffs.

A very important activity involving the two levels of University administration is the introduction of new campus academic programs, which must be approved by the President and Board of Curators before they can be implemented. All proposals by any college, school, or division of the University for new graduate and advanced professional degrees and programs and all new proposals for multidisciplinary research organizations are referred to the University Graduate Council for review, evaluation, and coordination. The University Graduate Council then makes recommendations to the President. In a similar manner, any proposals by any college, school, or division of the University for new undergraduate programs are referred to the Undergraduate Studies Council for evaluation and coordination and recommendations to the President.

This administrative structure is designed to accomplish two somewhat divergent, but basically related, objectives. All four campuses must function as components of a system operating under policy established by the Board of Curators and made operational by the President. However, each campus has important characteristics that deviate significantly from those of the other three campuses, and sufficient flexibility must be present to permit each campus to develop its own unique potential. Under this administrative structure, it is anticipated that each campus will develop those education, research, and service programs that can utilize the available resources of the immediate area and, at the same time, assume an appropriate share of statewide need in conformance with overall policy of the total University.
Institutions of higher learning are scattered over the United States according to no readily apparent pattern and certainly not as the result of a well-conceived plan. They present a vast variety of sizes, educational offerings, funding sources, and institutional personality. Like any business organization, they are born, expand, or expire according to their relative competitive strengths. They operate in local and national markets in which demand for their services is determined by students seeking an education.

The demand for higher education by students is an important planning element that must never be underestimated nor overlooked. Although the current overall demand for higher education is so strong as to force many students to accept other than their first choice of schools, individual components of the demand are neither strong nor stable. Consequently, the planners of each college and university must carefully consider the current future market demand for its services and as carefully assess the future supply of services to be provided by competing institutions.

In this market, two criteria used by students in selecting an institution of higher education are important to state universities: (1) quality of academic programs, and (2) tuition expense. Unfortunately, many qualified and even exceptional students may be denied a college education or be forced to accept admission to an institution of inferior quality because of limited personal financial resources. The rationale for society lending financial support to this market demand was stated in 1965 by President Elvis J. Stahr of Indiana University:

... 1) the principle, recognized by our forefathers, that society does indeed benefit from an educated citizenry, indeed cannot survive without it, and therefore in equity should bear at least part of the burden; and 2) the fact that graduates become members of society and quickly begin to repay the cost of their education in taxes and other ways during their many productive years. Their education is far from a free ride at society’s expense: for they with their higher earnings are keeping the investment in education constantly renewed.

In study after study, it has been shown that the greatest single factor in the growth of the Gross National Product in this century has been education, not capital, not the size of the labor force. The productivity of the work force, all the way through top management, has reflected the mounting economic effect of education.

Consequently, if a state university is to serve adequately the state’s resident population, it must provide academic programs of excellence and charge the lowest possible tuition rates.

Universities and colleges are social institutions, and the primary service they provide is education. Their objective is to develop in the student an understanding of himself and of the natural, social, and cultural worlds around him so that his inherent capabilities may be effectively adapted to his economic, social, cultural, and personal life. Essential functions of educational institutions, then, are to assist the student—by directing his efforts into those areas of study which will be most fruitful and personally rewarding to him—and to indicate the terminal point in his formal full-time education, so that there will be the least waste of his time and society’s resources. From the social viewpoint, this means preparing each student for his maximum contribution to and participation in the democratic way of life.

Because it is neither possible nor desirable for students to receive their lifetime education from formal sources, including colleges and universities, they must be prepared with incentive, method, and foundation for continuing the learning process throughout their lifetimes; this preparation should be an integral part of their formal instruction. The tremendous acceleration in the growth of knowledge is also forcing an increasing portion of the educated community to return to formal education from time to time, and this continuing education is an increasingly important obligation of institutions of higher education. In essentially all professions continuing education is a must.

The sheer mass of knowledge combined with an increasing proportion of the population seeking higher education is placing a considerable strain on available resources. Thus, it has become absolutely essential that the resources committed to higher education be efficiently used. Fundamentally, this becomes a search for better teaching methods and media. This is an activity that is receiving serious and continuous attention by all institutions of higher learning.
The University of Missouri has the responsibility of performing a dual educational service for the state. It must (1) make high quality university education available to all Missouri citizens capable and desirous of it at costs that are not prohibitive to the student; and (2) provide for the state's needs for educated competence. Although these dual responsibilities are not incompatible, the satisfaction of one does not automatically meet the requirements of the second. The University of Missouri is part of a national market supplying educational services. Students are free to purchase in this market; they are limited only by their capabilities, unique requirements, and available funding. When the student has finished his education, he is free to seek employment and select that combination of employment and living conditions which best suits his desires. In a similar manner, resident organizations seek employees and are guided solely by the competence that can be purchased with the available salaries and wages.

Thus, resident students seek an education that prepares them for successful competition, and resident organizations seek the best employee services per dollar expended. The University of Missouri is in an excellent position to perform its dual responsibility, if, in addition to low fees and proximity to student population, there is continued competence to provide higher education of superior quality. Anything short of this would be a disservice to the potential student population and to the economic and social organizations of the state. There is increasing evidence that a quality institution of higher education provides substantial drawing power that attracts and retains high caliber personnel within the state.

There is a tendency to consider the total formal educational system as a hierarchical structure with a base of grade-school students and teachers and the pyramid extending upward through high school, junior college, and baccalaureate college to an apex at the graduate-doctoral level. Both students and teachers are presumed to acquire more competence, status, and importance as the doctoral point is approached. This view is somewhat short-sighted, and its use as a sole criterion in educational planning will result in wasted resources and an inferior educational product. If all students receive formal education to the extent their inherent capabilities permit, there will be a series of termination points extending from grade school to the very top level of the pyramid. Students dropping out at the lower levels should receive the best possible instruction because that instruction, at whatever level terminated, is the sole formal preparation they will have for attaining a fruitful and satisfying lifespan. For those students who will progress to successively higher points, the basic preparatory education is of tremendous importance. If the preparation is inadequate, resources will be wasted at higher levels in correcting student deficiencies, and there is high probability that the student will not attain his maximum educational potential.

Thus, the University of Missouri is intensely interested in the quality of instruction provided for high school and junior college students who may subsequently enroll in its baccalaureate programs. More directly, the University attaches great importance to the quality of instruction which it provides its student body and will continuously strive to upgrade its efficiency and effectiveness.

THE FOUR EDUCATIONAL CATEGORIES

Thus, within the State of Missouri, only the University of Missouri provides public higher education in a university-type intellectual setting, and this is one of the alternatives of opportunity that must always be available to citizens of the state. Therefore, the University cannot and has no plan to de-emphasize or curtail undergraduate educational efforts in the years ahead. Recognizing the vital importance of undergraduate education, the University proposes to constantly increase its quality by taking the following basic steps toward improving undergraduate teaching:

- Maintenance of a campus ethos that encourages effective teaching. Good teaching will be properly
rewarded, and a concern for student learning will be appropriately recognized.

- Careful selection and assignment of faculty to undergraduate teaching responsibilities. Toward this end, an increased proportion of professorial-rank staff will be engaged in teaching freshman and sophomore students, while graduate students assigned teaching responsibilities will be selected with care and will be properly trained and supervised.

- Utilization of a variety of teaching patterns and procedures: the lecture, small group discussion, tutorials and an emphasis on independent learning.

- Attention to the evaluation of effective teaching, in part as a means of attesting to its importance and in part as a necessary prerequisite to its improvement.

- A demonstrated concern about student growth and development; a recognition that desirable changes in behavior are the outcome of effective teaching.

- Recognition of the importance of technological advances in the development and use of instructional media; realizing that the use of such media can enhance the effectiveness of teaching and learning.

The University of Missouri, for cost-study purposes, has divided the education programs into four categories: undergraduate, primary professional, advanced professional, and graduate. In the undergraduate category, all are baccalaureate programs except those designated primary professional. The primary professional programs are: Agriculture, junior and senior years; Engineering (including the School of Mines and Metallurgy), sophomore, junior, and senior years; Journalism, junior and senior years; Pharmacy, all four years; Nursing, sophomore, junior, and senior years; Forestry, junior and senior years; Home Economics, junior and senior years. Advanced professional are: all three years of Law (reclassified from primary professional); and all four years of Dentistry, Medicine, and Veterinary Medicine.

Using this basis for analysis, the 1967 full-time equivalent enrollment at the University by campus is given in the table below.

<table>
<thead>
<tr>
<th></th>
<th>Columbia</th>
<th>Kansas City</th>
<th>Rolla</th>
<th>St. Louis</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate</td>
<td>12,261</td>
<td>4,546</td>
<td>1,753</td>
<td>5,305</td>
<td>23,865</td>
</tr>
<tr>
<td>Primary Professional</td>
<td>2,509</td>
<td>169</td>
<td>2,423</td>
<td></td>
<td>5,101</td>
</tr>
<tr>
<td>Advanced Professional</td>
<td>872</td>
<td>732</td>
<td></td>
<td></td>
<td>1,604</td>
</tr>
<tr>
<td>Graduate</td>
<td>3,493</td>
<td>1,100</td>
<td>686</td>
<td></td>
<td>5,279</td>
</tr>
<tr>
<td>Total</td>
<td>19,135</td>
<td>6,547</td>
<td>4,862</td>
<td>5,305</td>
<td>35,849</td>
</tr>
</tbody>
</table>

**Enrollment by educational-program categories at the University of Missouri...fall 1967**

**PERCENT FTE ENROLLMENT BY EDUCATIONAL CATEGORIES...FALL 1967 AT THE UNIVERSITY OF MISSOURI**
The distribution of doctorates among the several graduate programs at the University of Missouri and for all universities indicates that the University is improving its balance, particularly in the Social Sciences, Arts and Humanities, and Education. This is shown in the above table and graph.

The United States Department of Health, Education and Welfare has calculated the number of baccalaureate, master’s and doctoral degrees awarded annually from 1955-65 and has projected the trend to the year 1975-76. The degree programs are divided into two categories: (1) natural sciences and related professions; (2) social sciences, humanities, and related professions. From these data the actual and projected percentage increase figures were calculated as shown in the accompanying table.

From these data, it is apparent that sizable increases have been registered and that competent authorities expect the increases to extend into the years ahead. The largest increases have been and are expected to remain in graduate study.
OFFICE OF VICE PRESIDENT FOR ACADEMIC AFFAIRS

A large organization can function effectively only with the systematic use of procedures which parallel the “quality control” of industry. Obviously, knowledge, motivation, and life-long productivity do not lend themselves to precise mathematical measurements or statistical study. This enhances the challenge and opportunity to the University for the development of effective measurement devices, communication techniques, and evaluative procedures.

As of July 1, 1968, the Office of Vice President for Academic Affairs was established for the primary purpose of encouraging, stimulating, and at times requiring high quality academic performance in the purest sense of the word. It will serve as a coordinator of academic effort in all areas of education, research, and planning. As supporting arms, it has the newly established Office of Institutional Research and the well-established fiscal research program of the Comptroller’s Office.

Each new academic and research program will be reviewed as to intrinsic merit, cost, and its place in long-range goals of the University, as well as its impact upon the quality of existing programs. Existing academic programs will be systematically studied and reviewed to determine their needs, value to the general community objectives, and existing quality. Appropriate use of national authorities in each field of scholarly endeavor will be a planned part of the review process.

Maximum responsibility will be placed upon the local departments and campuses to initiate and carry out these studies under the guidelines and advice provided by the appropriate statewide academic council and the Office of the Vice President.

GRADUATE STUDY AND RESEARCH

The University is aware of the increasing importance attached to graduate study and will continue the trend toward greater participation in graduate education. However, the University also recognizes that for graduate study, research is a prerequisite backdrop and environmental circumstance because graduate education fundamentally is: (1) pushing the student, from a knowledge point of view, to the frontiers of his field; and (2) handing him the tools to engage the unknown beyond.

Although it is customary to speak of education as the primary function and research as supporting, in reality the two are inextricably bound together in institutions of higher education. The business of education is transmitting knowledge, while research is concerned with creativity, discovery, and inquiry at the frontier of human knowledge. An inquiring mind, objectivity, a critical and questioning attitude, and an intimate familiarity with the scientific method are basic elements of research and also are characteristic of the educated man. These characteristics flourish best in a favorable climate of substantial and productive research programs found in the graduate centers of excellence. Experience indicates that the higher the level of educational instruction, the greater the degree of research involvement, so that at the doctoral level research and teaching become almost indistinguishable. Distinguished universities almost always are the result of high quality graduate work and the research productivity of their faculties.

Thus, research is an essential element of higher education and contributes significantly to all levels of instruction. Research is also important to the Missouri population because of its product. Although a substantial portion of University research is supported with federal funds and the problems studied have general applicability, the findings or knowledge discovered are almost always of local importance. In feasibility studies, local situations and problems are used in the demonstration projects with considerable benefit accruing to the state areas concerned. Candidates for the master’s and doctoral degrees are required to complete research projects of superior quality, and the areas of study are likely to be those of value to the state population. A superior research program is essential for high quality teaching, and the combination is most likely to produce findings and information important to the economic, governmental, and social organizations of the state.

During the past 15 to 20 years the national expenditures for research and development have registered an enormous expansion. The University
of Missouri has been participating in this rising importance of research. In 1960 the University expended $5,670,699 on research, and by 1967 this had been expanded to $32,277,459, or an increase of 469 percent. This $32,277,459, largely from non-state funding sources, was divided as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Sciences</td>
<td>$8,010,274</td>
</tr>
<tr>
<td>Agricultural Sciences</td>
<td>$7,915,983</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>$5,561,983</td>
</tr>
<tr>
<td>Life Sciences</td>
<td>$3,971,909</td>
</tr>
<tr>
<td>Social Sciences, Humanities</td>
<td>$3,574,718</td>
</tr>
<tr>
<td>Engineering</td>
<td>$3,242,592</td>
</tr>
</tbody>
</table>

In 1966 the University of Missouri ranked 22nd in the nation among universities in total federal dollars obtained. This was an advance from a ranking of 47th in 1964 and 40th in 1965.

The responsibility of representing and advising the President on the development and coordination of the rapidly expanding research programs on the four campuses rests with the Vice President for Research and Graduate Studies, who works closely with the University Graduate Council. This Council advises the President on all phases of policy regarding graduate education and research and is composed of the deans of the graduate schools and the deans of schools and colleges having large graduate and research programs. Also, the Vice President for Research and Graduate Studies is

Expenditures for research at the University of Missouri, fiscal 1961-1968... and distribution of funds for fiscal 1968

1960-61 $5,670,699
1961-62 $6,111,629
1962-63 $6,926,994
1963-64 $8,950,664
1964-65 $12,759,664
1965-66 $19,472,269
1966-67 $24,333,181
1967-68 $32,277,459
responsible for assisting the Graduate Deans and Research Coordinators on the four campuses in the development and consultant evaluation of their programs and for the policy review and coordination of all applications to government funding agencies, foundations, industry, and private individuals for support of research and training projects. The Office of the Comptroller is responsible for fiscal review of the proposals.

To date, the statewide University has developed and is maintaining six research facility centers wherein individual research investigators may pursue their specific areas of interest. These are: (1) Research Reactor Facility; (2) Charles and Josie Sinclair Comparative Medicine Farm for Study of Chronic Disease and Aging; (3) Environmental Health Center; (4) Space Sciences Research Center; (5) Water Resources Research Center; (6) Office of Industrial Development Studies. So that the faculty of all four campuses may have free and uninhibited access to these facilities, they have been placed under the administrative jurisdiction of the Office of Research Administration. Each facility has a director, who is advised on policy matters by an intercampus committee. All research is conducted by individual investigators, who are members of academic departments of the University.

Whatever a university is or may hope to become is dependent upon the quality of its faculty. Each college and university must continuously compete to acquire new faculty and to retain its current complement. To successfully attract faculty of desirable quality, a combination of salary and academic environment must be offered. The University of Missouri has recently established four new programs designed to increase faculty strength in the areas of graduate study and research. Each program is administered by the individual campuses under broad university policy prepared by intercampus committees.

The Assistant Professor Research Fund provides support to young and exceptionally capable research or creative arts faculty, who experience difficulty in securing an initial grant from funding agencies. This program was established in 1967-68 and is proving to be of major assistance in the recruitment, retention, and maturation of junior faculty.

The Faculty Improvement Program becomes operative in the 1968-69 academic year and is designed to keep unusually well trained and capable staff currently informed and on the cutting edge of discovery in their respective fields. It provides for (1) short term leaves of absence to study at leading university or government laboratories; (2) attendance at symposia or conferences on topics of special interest and value to the staff member; (3) employment of distinguished persons as visiting professors, to stimulate staff and maximize their effectiveness; (4) other activities that contribute directly to teaching effectiveness.

In the spring of 1968 the Board of Curators approved a new category of appointment, the Curators Professorship. It is anticipated that only a limited number of such appointments will be made, and that those appointed will be persons with outstanding scholarly achievement and of exceptional ability. Such appointees will contribute substantially to the maintenance of superior academic standards, to the attraction of exceptionally qualified graduate students, and to the general reputation and visibility of the University.

The University of Missouri is a member of the Mid-America State Universities Association (MASUA) and participates in the MASUA Traveling Scholar Program. This program enlarges and strengthens the opportunity for graduate work at MASUA universities by sharing resources for instruction and research at the doctoral level. Not only is expensive duplication of faculty and equipment avoided, but the horizons for graduate study and research are substantially increased for participating universities.

Another activity that contributes to the University's drive toward excellence is the Development Program, which includes both fund raising and alumni relations activities. It involves mobilizing the various publics of the University into active supporters for its many teaching, service, and research responsibilities. During the past decade, the Development Program has grown in scope and importance, enhancing the financial position of the University and involving a substantial number of alumni in University programs. During the next 10 years, the alumni body of all four campuses will grow to more than 150,000 persons. The challenge for the future is to increase the involvement of these alumni in interest and financial support, and also to obtain greater support from other constituencies, such as friends of the University, corporations, and foundations.

These somewhat unique activities, designed to improve quality in teaching and research, will move the University forward toward its goal of academic excellence, but considerably more effort and resources will be required before the major objective can be attained—the creation of a great university.
EXTENSION AND CONTINUING EDUCATION

Extending University knowledge resources, on a continuing basis, to the people of the state is the major function of the Division of Extension and Continuing Education of the University of Missouri. Extension programs reflect the open and extended campus concept, designed to break through the "ivory towers" to apply University know-how to the social and economic problems of the geographic area served by the University. This approach conforms with the spirit and concept of the land-grant tradition. Of equal importance are the continuing education programs involved in the vital process of retreading, refreshing, and updating the academic competence of the adult population.

The major contribution of the University of Missouri to its state population derives from its program of educating the resident students and providing educated personnel for Missouri's economic and social organizations. A supplementary contribution comes from associated research activi-
ties. In addition, the University makes significant contributions toward the solution of individual and community problems. Some of these contributions are made possible by direct appeals for assistance from state organizations that are aware of the competencies of the University faculty. Thus, the faculty serve on committees and boards, offer consulting advice, undertake special research projects, and assist in establishing systems for organizational use. Special training sessions may be devised to meet immediate and urgent needs. Many of the complex problems that plague urban, semi-urban, and rural communities demand the application of skills and knowledge found primarily in university faculty. Such direct contributions are also of benefit to the faculty concerned and to their students.

The function of maintaining an acceptable adult education interface between the University and its statewide population resides in the Vice President for Extension. Significantly, this organizational structure developed for extending the University of Missouri beyond its four campuses has gained national attention. Essentially, it is composed of the following elements:

- The Vice President for Extension functions at the University-wide level and is responsible for advising the President and representing him in the development and coordination of continuing education and extension programs of the University. Advising him is the University-wide Extension Council composed of faculty and deans from the four campuses.
- On each of the four campuses a Dean of Extension reports to the campus Chancellor and is responsible for the development and coordination of continuing education and extension programs emanating from that campus. Primary responsibility for extension and continuing education programs on each campus resides in the respective academic units.
- Each county of the state has an Extension Center, staffed by University faculty and operating under the administrative jurisdiction of the Vice President for Extension. These centers are partially funded locally; they have been in existence for more than 50 years; and as local points of contact for the University, they integrate its many campus programs into the communities of the state.

Center staff members design and conduct programs in conjunction with campuses, do some direct teaching in their individual areas of academic competence, and serve as educational programmers. Plans call for a gradual reduction in the number of Extension Centers, as district centers are staffed with a corps of specialists appropriate to the major needs of the resident population and are equipped with modern communication facilities. Also planned are gradual redirection of resources to the population centers, increased use of para-professionals, and continuous upgrading of the quality of instruction.

While Extension teaching flows from the academic units, the educational needs of most groups are best served through an interdisciplinary approach. Hence, programming is organized around five major clientele groups: professionals; farmers and agri-businessmen; families and youth; businessmen, industrialists, organized labor leaders, and officials; employees and leaders in the community and public section.

A variety of formal and informal education techniques are used. Formal approaches include credit courses off-campus, correspondence or home-study courses, non-credit courses, short courses, conferences, and meetings designed specifically to meet the needs of a particular clientele group. Informal approaches are made through individual conferences, technical publications, letters (both individual and circular), and the mass media. Through a combination of approaches, 1,250,000 Missouri citizens are currently being reached annually by the University of Missouri. The numbers contacted may not increase significantly, but there will be a sharp rise in the intensity of instruction.

The University has recently established a new program which contributes to Extension activities. This is the urban problem-solving effort, which is designed to increase the effectiveness and relevance of the University's activities in metropolitan areas. Through this program, divisions, departments, and individual faculty members on the four campuses receive limited support for innovating approaches that are appropriate to the University and effective in aiding in the solution of major metropolitan problems.

Extension will continue to function under the following basic guidelines:

- High quality programs will be offered at all university academic levels.
- Programs will be based upon the expressed needs of Missouri citizens.
- Programs will use faculty of the University of Missouri and other universities, as well as qualified persons not on university staffs.
- There will be increased allocation of resources to social and community problems, with emphasis on urban areas.
THE FOUR CAMPUSES

Distribution of enrollment on the four campuses . . . fall 1967

Columbia
53.3%

Kansas City
18.4%

Rolla
13.5%

St. Louis
14.8%
The University of Missouri School of Mines and Metallurgy was established February 24, 1870, as the mechanical arts institution under the Morrill Land Grant Act of 1862. The Rolla campus has been a specialized campus oriented to engineering and physical science education throughout its long history and has attained national visibility in several areas of endeavor. To meet the unique needs of modern professional engineering, the campus has developed academic programs in the basic and applied physical sciences and, in addition, has developed an appropriate array of supporting liberal education courses in the social sciences and humanities. Consequently, the essential elements of a comprehensive education program in professional engineering are located on this campus. In recognition of this development, the University of Missouri School of Mines and Metallurgy, by action of the Board of Curators, on July 1, 1964, was renamed the University of Missouri - Rolla and its departments were grouped into new schools: the School of Mines and Metallurgy, the School of Engineering, the School of Science, and the Graduate School. The Division of Liberal Arts and the Extension Division complete the present organization. The 1967-68 full-time equivalent number of students enrolled on the Rolla campus is approximately 4,900.

This campus (see map on pages 18 and 19) is situated in Rolla, which has a current population of about 14,500, including the student enrollment, and which is located in the central portion of the state about 90 miles south and slightly east of
Columbia and 100 miles southwest of St. Louis on Interstate Highway 44. Largely because of the University of Missouri, three important governmental agencies are located in Rolla: the Missouri Geological Survey; the topographic division of the United States Geological Survey; and the metallurgical research laboratories of the United States Bureau of Mines. These agencies provide a community of some 800 professional engineers, geologists, cartographers, mathematicians, and technicians. The number of full-time equivalent faculty, by rank, on the Rolla campus is as follows (1968-69):

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>80</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>109</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>105</td>
</tr>
<tr>
<td>Instructors</td>
<td>77</td>
</tr>
<tr>
<td>Other Teaching and Research</td>
<td>62</td>
</tr>
<tr>
<td>Total Faculty</td>
<td>433</td>
</tr>
</tbody>
</table>

Recognizing the increasing importance of graduate study to the field of engineering, a comprehensive graduate-degree program has been developed on the Rolla campus. The graduate and baccalaureate degrees now offered are shown in chart form in the appendix.

The Rolla campus has important research programs in the physical sciences and engineering. In 1967 the Department of Physics received a National Science Foundation Departmental Science Development Grant of nearly $500,000 to assist in the development of exceptional competency in physics.

Engineering and the physical sciences have participated in, and often led in, the rapid advancement of knowledge. Consequently, Extension is vitally concerned on the Rolla campus with continuing education for professional graduates in these areas. Of major importance is the extent to which continuing education must be taken off the campus into areas where the professional engineer populations are concentrated. For example, several graduate-degree programs in engineering are given on the St. Louis campus by faculty from the Rolla campus. (See the chart in the appendix.)

Also, the Rolla campus operates a Cooperative Education Program, which is among the 12 largest in the nation. Currently, there are 422 students in this program; it involves alternating, in the sophomore and junior years, on-campus course work with work in industry.

Considering that the University of Missouri-Rolla (beginning with the School of Mines and Metallurgy) has a long-established reputation for producing well-trained, professionally-oriented engineers and scientists at all degree levels, it would seem undesirable to endanger this accomplishment by any shift in the central focus of instruction. The Rolla campus will strive to continue its place among the strong, specialized basic physical science and engineering schools of the nation through concentration on improving and expanding the baccalaureate, master's, and doctoral programs in engineering and the physical sciences; developing a more comprehensive research program; and providing a wider service resource for student training.
Location of Rolla campus

UNIVERSITY OF MISSOURI - ROLLA
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1. Altman Hall .................................. G-6
2. Chancellor's Residence ......................... G-8
3. Chemical Engineering Bldg. .................... G-8
4. Civil Engineering Bldg. ......................... G-12
5. Electrical Engineering Bldg. .................. F-12
6. Farrar Hall .................................. G-5
7. Fulton Hall .................................. F-11
8. General Services Bldg. ......................... B-9
9. Harris Hall .................................. F-9
10. Heating and Power Plant ...................... F-9
11. Holtman Hall ................................ G-5
12. Kelly Hall .................................. G-5
13. Library ..................................... F-11
15. Mechanical Engineering Bldg. ............... F-10
16. Military Bldg. ................................ F-12
17. Mining Engineering Bldg. ..................... F-10
18. Multi-purpose Bldg. .......................... F-4
19. Nagogami Terrace Married Student Apartments C-8
20. Norwood Hall ................................ G-10
22. Old Cafeteria ................................ F-10
23. Old Chemistry Bldg. ......................... G-8
24. Old Metallurgy Bldg. ......................... H-11
25. Parker Hall .................................. G-10
26. Physics Bldg. ................................ G-11
27. Ray Dining Hall .............................. G-5
28. Rolls Bldg. .................................. G-9
29. Student Health Service ......................... F-8
30. Student Union ................................ G-3
31. Temporay Research Facility .................. A-9
32. Women's Residence Hall ....................... F-8
33. Beta Sigma Psi ................................ A-6
34. Delta Sigma Phi ................................ A-7
35. Kappa Alpha ................................ A-5
36. Fraternity Houses .............................. A-6
37. Beta Sigma Psi ................................ A-6
38. Delta Sigma Phi ................................ A-7
40. Temporary Buildings ........................... F-9
41. T-1 ........................................ F-9
42. T-4 ........................................ F-11
43. T-6 ........................................ F-10
44. T-7 ........................................ E-12
45. T-10 ........................................ G-8
46. T-11 ........................................ G-8
47. T-L ........................................ E-12
48. Temporary Athletics Bldg. ..................... F-10
The University of Missouri-Kansas City was created in 1963, when the University of Kansas City merged with the University of Missouri. While the University of Kansas City received its charter in 1929 and opened its doors in 1933, it later acquired substantially older institutions: Dental College, established in 1881; College of Pharmacy, 1885; School of Law, 1895; and Conservatory of Music, 1907. A School of Business and Public Administration was added in 1953, a School of Education in 1954, and a Division of Continuing Education in 1958. Enrollment (FTE-1967-68) is at the 6,600 level.

Kansas City is a metropolitan area of 1.3 million population and a projected census of three million by 1990. There are several good but small liberal arts colleges in this urban center, and one is adjacent to the University of Missouri campus. Thus, the University of Missouri-Kansas City is an urban campus and currently is serving primarily a commuter student body.

The major campus of 85 acres (see map on pages 22 and 23) is located approximately 50 blocks south of downtown Kansas City in what is designated as the “cultural center” of the metropolitan area. The Conservatory of Music is eight blocks away at the northern edge of the center. Also in this center are the Nelson-Atkins Gallery of Art, Menorah Medical Center, Rockhurst College, Midwest Research Institute, Kansas City Art Institute, and the nationally prominent Linda Hall Library of Science and Technology. The School of Dentistry is not situated on the major campus. Dentistry presently is located adjacent to the downtown area, but a new building is under construction on Hospital Hill at 25th Street, where plans have been made for a large health and medical care complex.

The University of Kansas City was created and developed as a liberal arts institution, and the College of Arts and Sciences remains today as the cornerstone of the educational programs of the University of Missouri-Kansas City. This College of Arts and Sciences and the professional schools of the Kansas City campus are in the early stages of graduate study development; a well-rounded offering of graduate degrees to the Ph.D. level is a future objective. In 1964 the University established the School of Graduate Studies. Baccalaureate degrees currently available on the Kansas City campus are displayed in chart form in the appendix.
The size of the full-time equivalent faculty (1968-69) gives some indication of the education and research efforts of the Kansas City campus:

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>101</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>105</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>106</td>
</tr>
<tr>
<td>Instructors</td>
<td>78</td>
</tr>
<tr>
<td>Other Teaching and Research</td>
<td>162</td>
</tr>
<tr>
<td><strong>Total Faculty</strong></td>
<td><strong>552</strong></td>
</tr>
</tbody>
</table>

The University of Missouri - Kansas City has active research programs in the biological, social, and physical sciences, and in the humanities; they are supportive of its developing graduate degree offerings. The principal effort in the biological sciences is in ecology, dentistry, oral biology, and pharmacy. The social sciences and business administration have developed a considerable interest and an appreciable competence in the investigation of urban problems, particularly those of major concern to the Kansas City area. In the physical sciences, programs are developing in chemistry, polymer chemistry, mathematics, and physics. An exceptionally good program has been developed in the interpretative arts, including music and the theatre.

Because the Kansas City campus is surrounded by a large urban population, Extension has an important and somewhat difficult challenge. Perhaps its most significant contribution is in the area of continuing education, particularly for professional personnel. The rapidly accelerating accumulation of knowledge through scientific research is making it essential that many persons in many professions seek convenient means to continue their education throughout their career life. Of almost equal importance is the interface of the University with the mounting recognition of urban problems in such metropolitan areas as Kansas City. Extension shares with the academic departments of the urban campus the difficult job of helping to meet those needs while supplementing rather than distorting the University's primary purpose, which is education.

The future development of the Kansas City campus will follow the existing pattern of a close relationship with, and a dependence upon, the College of Arts and Sciences by the professional programs. A major thrust in the area of the health sciences will require continued cooperation between the Schools of Dentistry and Pharmacy and the related science departments of the College. The use of the Kansas City urban environment as a training and research testing laboratory for the social science departments of the College and the related activities of the Schools of Administration, Education, and Law will benefit both the educational programs of the University and the metropolitan area. The strength of the programs of the Conservatory of Music and the theatre and radio activities of the Speech and Theatre Department of the College are major cultural assets of the community and provide a locus of strength for quality development in the area of the fine arts.

Although the University of Missouri - Kansas City should in time become a well-rounded complex of considerable size and reputation, it will pass through several intermediate stages, which will be of vital importance to the urban population it will serve. As an urban institution, its academic programs must first relate to the intermediate educational needs of the commuter students. Many of these needs will be in the area of the professions and will include baccalaureate, graduate, and continuing education programs. In support of these programs, there must be adequate study provided in arts and science and in the humanities.

Eventually, the campus will face the introduction of entirely new areas or schools. Although the University will not locate a school of engineering on the Kansas City campus during the next 10 years, basic engineering courses will be offered by faculty of the School of Engineering at Columbia. The substantial emphasis placed on health education through the School of Dentistry and the School of Pharmacy will be expanded, and a school for allied health personnel is a possibility. Other educational programs requiring clinical populations or urban situations for student training will undoubtedly be found suitable for development. Thus, the Kansas City community has always looked favorably upon the broad area of the performing arts and will lend considerable attendance support to well-presented programs. The University of Missouri - Kansas City, therefore, could make a major contribution to the cultural life of the area by developing an outstanding program in the performing arts.

Because the Kansas City campus is situated in a large and growing metropolitan area, the University of Missouri - Kansas City may eventually become an institution of considerable size and national visibility. The University is also aware that this objective lies somewhat in the future and will make certain that the educational programs offered in the intervening period are needed by the urban population and are of appropriately high quality. In this way, the University of Missouri - Kansas City can best accommodate both the short- and long-run educational needs of the Kansas City metropolitan area.
Location of Kansas City campus at Volker Blvd. and Rockhill Rd.
Liberal Arts  
(College of Arts & Science)  1839
Normal College  
(College of Education)  1868
College of Agriculture and Mechanic Arts  1870
School of Medicine  1872
School of Law  1872
School of Engineering  1877
Nursing Instruction  1901
School of Journalism  1908
Graduate School  1910
School of Business and Public Administration  1914
School of Nursing  1920
School of Veterinary Medicine  1949
School of Forestry  1957
School of Home Economics  1960
Extension Division  1960
School of Social and Community Services  1965
School of Library and Information Science  1966

EDUCATIONAL DEVELOPMENT ON THE UNIVERSITY OF MISSOURI - COLUMBIA CAMPUS
The growth of educational offerings on the Columbia campus during the past 129 years is indicated by the dates at which schools and colleges were established (given in the accompanying table, opposite page.)

This campus is situated in Columbia, which has a current population of about 52,000, including students from Stephens College, Christian College, and the University of Missouri. Columbia, centrally located in Missouri, is about 125 turnpike miles west of St. Louis and east of Kansas City. The campus, including farmlands, covers over 3,000 acres, of which about 800 acres constitute the main campus in the center of Columbia. In addition to the many buildings housing administration, teaching, and research programs, there are numerous student residence halls, sorority and fraternity houses; a student union and commons; and a stadium, gymnasium, and other athletic facilities. In sum, the Columbia campus contains nearly all of the elements of a long established, self contained, and relatively complete land-grant university. Enrollment in 1967-68 was about 19,000 students. (A sketch of the campus is shown on the following page.)

Over the years, the Columbia campus has been developed to serve the university-type public higher educational needs of the entire state. Its basic undergraduate, professional, and graduate degree programs are designed to produce graduates who are well grounded in the various facets of their areas of interest. This is accomplished by interrelating the extensive offering of academic programs and by making available a wide spectrum of graduate study. The appendix contains a chart which shows the areas in which baccalaureate and graduate degrees are offered by the Columbia campus.

An indication of the size of the teaching and research programs on the Columbia campus can be gained from a listing of the full-time equivalent faculty (1968-69) by professional rank:

<table>
<thead>
<tr>
<th>Faculty Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>373</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>336</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>396</td>
</tr>
<tr>
<td>Instructors</td>
<td>326</td>
</tr>
<tr>
<td>Other Teaching and Research</td>
<td>699</td>
</tr>
<tr>
<td>Total Faculty</td>
<td>2,130</td>
</tr>
</tbody>
</table>

The University of Missouri - Columbia has important research programs in the biological, social, and physical sciences and in the humanities. These programs are conducted by faculty in Arts and Science, Agriculture, Business and Public Administration, Education, Engineering, Journalism, Law, Medicine, and Veterinary Medicine. Because of the unusual grouping on one campus of these schools and colleges, there exists an exceptional opportunity for multidisciplinary approaches to many problems. For example, the professional degree programs require basic study in the arts and sciences, and programs such as mental retardation and rehabilitation need combinations of courses from several schools. Interdisciplinary cooperation is also essential in many areas of research and service, as in comparative medicine, bioengineering, and the Missouri Regional Medical Program, which is concerned with discovering better ways to deliver adequate health care to the Missouri population at risk to heart disease, cancer, and stroke.

Because of the professional schools located on the Columbia campus, Extension is playing a very significant role in the development and presentation of programs in continuing education. In 1960 the University of Missouri became the first of the land-grant universities to combine cooperative agriculture extension activities with those of all other units and divisions of the University. The rapidly expanding fields of knowledge have made it absolutely essential for most professional persons to renew their formal education at increasingly shorter intervals of time, and Extension is striving to meet this challenge.

The Columbia campus will continue the development and refinement of its present program and will remain the University’s major resident campus with statewide orientation. As a comprehensive campus, it contains various professional programs, such as Agriculture, Veterinary Medicine, Forestry, Home Economics, and Journalism, that will not be duplicated elsewhere in the coming decade. Admission requests will increase and all qualified applicants will be accommodated. Important steps have been and will continue to be taken to protect and improve undergraduate education. Considerable development is anticipated in academic programs that encompass two or more disciplines, professions, and science categories, such as bioengineering and a school of public health. Graduate study will be improved and expanded significantly to accommodate the projected increase of graduate students and the ever widening frontiers of knowledge.

Thus, the University of Missouri - Columbia in 1978 should be somewhat larger, should have improved baccalaureate and graduate instruction, and should have programs that are better integrated and that are strong in continuing education, graduate study, and research.
The University of Missouri - St. Louis was established in 1960 as a two-year college through the joint efforts of the University and the Normandy School District. In 1963 it became a four-year institution and one of the four campuses of the University of Missouri. Presently 5,300 FTE (1967-68 enrollment) students are being taught in four permanent-type buildings on this entirely new
campus, a 132-acre site in a residential section of the St. Louis metropolitan area. (See sketch on this page.) Ninety-eight percent of the students enrolled are from the St. Louis metropolitan area, which in 1965 had an estimated population of 2,249,000 and a projected census for 1980 of 2,988,000. In addition to several small private colleges and a three-campus Junior College System, there are two major private universities (St. Louis University and Washington University) in the metropolitan area.

Because the St. Louis campus is in the initial stage of its development, most of its growth in faculty, capital improvements, academic and research programs, and student enrollment lies ahead. However, in the short period of its ex-
istence, it has made considerable progress in all areas, and a significant amount of essential planning has been completed. Currently, there are the College of Arts and Sciences, the Schools of Business Administration and Education, the Evening College, and a Division of Extension. New facilities under construction or already authorized include a life sciences building, a social science-business-education complex, a physical education multipurpose building, a student union, and an adult education building. The number of full-time equivalent faculty by rank (1968-69) is:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>33</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>53</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>102</td>
</tr>
<tr>
<td>Instructors</td>
<td>122</td>
</tr>
<tr>
<td>Other Teaching and Research</td>
<td>9</td>
</tr>
<tr>
<td>Total Faculty</td>
<td>319</td>
</tr>
</tbody>
</table>

Graduate study on the St. Louis campus is in the beginning stage and is currently limited to a master's degree in Education. Additional graduate-degree programs will be developed in the social sciences—economics, sociology, political science, history—and business administration, with master's degree programs probably beginning in these disciplines as early as the fall semester of 1969. Graduate study in the physical sciences and humanities is on the drawing board. Programs at the Ph.D. level will be offered in the basic arts and sciences as resources permit and demand can be demonstrated. The development of graduate study and research is absolutely essential to satisfactory growth of baccalaureate programs on the St. Louis campus. The recruitment and retention of a quality university faculty is now possible only in an atmosphere of advanced study and basic investigation. This atmosphere will be developed as rapidly as resources can be made available.

A strong research program is underway in all areas of Arts and Sciences, Business, and Education. A major emphasis will be placed upon the solutions of problems of the urban community and upon research programs which contribute to international understanding.

Extension on the St. Louis campus has been concerned with developing continuing education for the many professional disciplines and with serving as the interface between the University of Missouri and the St. Louis urban community. These programs will expand considerably as the campus grows. Expansion of the present graduate-degree programs in engineering into the undergraduate level will receive early consideration. Although the University will not locate a school of engineering on the St. Louis campus during the next 10 years, graduate-degree programs will continue to be offered by faculty from the Rolla campus, who will also teach whatever basic undergraduate engineering courses are provided.

The University of Missouri - St. Louis provides an opportunity to guide the development of an outstanding institution of higher education that is focused on the academic needs of a very large urban population. Unfettered by past mistakes, there is present the possibility of accommodating the urgent admission demand, together with a high-quality educational program, and the rate of growth will be determined primarily by the availability of resources. Careful planning and a rigid adherence to quality programs are being pursued, so that the campus may exploit fully the exceptional opportunities that exist in the metropolitan area and also may avoid the pitfalls that surround necessary developmental speed.

The University of Missouri feels it should not place any arbitrary restrictions on the ultimate size and composition of the St. Louis campus at this time. Development will be orderly, will accommodate the most urgent needs first, and will offer a complex of high-quality academic programs at a rate that is consonant with available funding resources. Basic arts and sciences and fine arts will be developed on a program costing basis as resources can be advanced. The fields of allied health sciences, business administration, education, and urban studies will be developed in response to the needs of the community. Schools of dentistry, law, pharmacy, or medicine are not a part of the plans for the next 10 years. During the next decade, the campus should develop to a degree which will provide a clearer and more specific blueprint of its ultimate structure.
ENROLLMENT (FULL-TIME EQUIVALENT) ON UNIVERSITY OF MISSOURI CAMPUSES, 1962-63 TO 1967-68

TOTAL ENROLLMENT (FTE) AT THE UNIVERSITY OF MISSOURI (ALL FOUR CAMPUSES)—1967-68 AND 1977-78 (PROJECTED)
The "projections" of enrollment through the next 10 years under the various academic disciplines [agriculture, business and public administration, education, etc.] are the best estimates of the divisional deans and other experts in the respective fields.
Education in the arts and sciences has an illustrious history that reaches back to the earliest institutions of higher education when the totality of man's knowledge could be presented in a limited number of basic courses. Today, the liberal arts colleges and the universities' schools of arts and science are the literal descendants of this basic approach to higher education; they remain the cornerstone of the University. The courses now taught in the liberal arts colleges and the schools of arts and science constitute the hard core basic knowledge which man has painstakingly assembled about himself and the world around him. Among the institutions of higher learning, this hard core instruction performs several fundamental functions. For those students whose higher education will terminate with the non-professional baccalaureate degree, the arts and science education must prepare them for the series of roles they will occupy throughout their lives. For those students who will seek professional degrees, the arts and science courses form an essential base upon which the professional education must build. It is the arts and sciences that prepare all students to become contributing members of our society and that provide the base upon which the student can continue his education through life.

It is customary to divide the programs usually found under arts and science into the three categories: humanities, social sciences, and natural sciences. The table on page 34 shows the degree programs now taught somewhere within the University of Missouri under these three categories.

Under these arts and science programs, 1,048 baccalaureate, 395 master's, and 109 doctoral degrees were granted in 1967.

The demand for arts and science education programs is partly direct and partly derived. It is direct for those students who will not continue their formal education after the baccalaureate degree in arts and science. It is derived for those students seeking professional degrees and for those who will enter graduate study leading to the master's and doctoral degrees. The direct demand is supported by the increasing importance society is placing upon a college education. Thus, the number seeking admission to universities and colleges is rising because of the population increase and because a larger portion of high school graduates can and do seek a college education. More and more, industry, business, and the professions are requiring the baccalaureate and ad-
ARTS AND SCIENCE, CURRENT DEGREE PROGRAMS—UNIVERSITY OF MISSOURI, 1967

(B=Bachelor’s, M=Master’s, D=Doctorate)

<table>
<thead>
<tr>
<th>Humanities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Art</td>
<td>B M</td>
</tr>
<tr>
<td>Archaeology &amp; Art History</td>
<td>B M D</td>
</tr>
<tr>
<td>Classical Language</td>
<td>B M D</td>
</tr>
<tr>
<td>English</td>
<td>B M D</td>
</tr>
<tr>
<td>French</td>
<td>B M D</td>
</tr>
<tr>
<td>German</td>
<td>B M</td>
</tr>
<tr>
<td>Linguistics</td>
<td>B M</td>
</tr>
<tr>
<td>Music</td>
<td>B M</td>
</tr>
<tr>
<td>Philosophy</td>
<td>B M D</td>
</tr>
<tr>
<td>Russian</td>
<td>B</td>
</tr>
<tr>
<td>Spanish</td>
<td>B M D</td>
</tr>
<tr>
<td>Speech &amp; Dramatic Arts</td>
<td>B M D</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Sciences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>American Civilization</td>
<td>B M D</td>
</tr>
<tr>
<td>American Culture</td>
<td>B</td>
</tr>
<tr>
<td>Anthropology</td>
<td>B M D</td>
</tr>
<tr>
<td>Engineering Management and</td>
<td>B M</td>
</tr>
<tr>
<td>Administration (to</td>
<td></td>
</tr>
<tr>
<td>Engineering 7/1/68)</td>
<td></td>
</tr>
<tr>
<td>Economics</td>
<td>B M D</td>
</tr>
<tr>
<td>French Civilization</td>
<td>B M</td>
</tr>
<tr>
<td>History</td>
<td>B M D</td>
</tr>
<tr>
<td>Home Economics (A. &amp; S. Only)</td>
<td>B M</td>
</tr>
<tr>
<td>Latin American Studies</td>
<td>B M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sciences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Political Science</td>
<td>B M D</td>
</tr>
<tr>
<td>Psychology</td>
<td>B M D</td>
</tr>
<tr>
<td>Social Psychology</td>
<td>B M</td>
</tr>
<tr>
<td>Social Work</td>
<td>B M</td>
</tr>
<tr>
<td>Sociology</td>
<td>B M</td>
</tr>
<tr>
<td>South Asian Studies</td>
<td>B</td>
</tr>
<tr>
<td>Soviet Studies</td>
<td>B</td>
</tr>
<tr>
<td>Chemistry</td>
<td>B M D</td>
</tr>
<tr>
<td>Computer Science</td>
<td>B M D</td>
</tr>
<tr>
<td>Geography</td>
<td>B M</td>
</tr>
<tr>
<td>Geology</td>
<td>B M D</td>
</tr>
<tr>
<td>Geophysics</td>
<td>B M D</td>
</tr>
<tr>
<td>Library Science</td>
<td>B M</td>
</tr>
<tr>
<td>Life Science</td>
<td>B M</td>
</tr>
<tr>
<td>Biology</td>
<td>B M</td>
</tr>
<tr>
<td>Botany</td>
<td>B M D</td>
</tr>
<tr>
<td>Microbiology</td>
<td>B M D</td>
</tr>
<tr>
<td>Zoology</td>
<td>B M D</td>
</tr>
<tr>
<td>Mathematics</td>
<td>B M D</td>
</tr>
<tr>
<td>Applied Mathematics</td>
<td>B M D</td>
</tr>
<tr>
<td>Meteorology</td>
<td>B M D</td>
</tr>
<tr>
<td>Physics</td>
<td>B M D</td>
</tr>
<tr>
<td>Engineering Physics</td>
<td>B M D</td>
</tr>
<tr>
<td>Statistics</td>
<td>B M D</td>
</tr>
</tbody>
</table>

Advanced degrees for entrance into, and advancement within, the business concern or profession.

The composite demand, direct and derived, for arts and science educational programs is very strong and should remain so throughout the foreseeable future.

**supply**

The present demand for college-trained personnel from all sectors of society is quite strong, and the supply of college graduates, although growing, remains somewhat below the overall demand. However, the supply of qualified students seeking admission to colleges and universities is demonstrating substantial growth; in the near future all students who have the capabilities for completing a college course of study undoubtedly will be seeking admission to some institution of higher education. It is to the advantage of society to see that none of these students is denied admission.

**projection**

It is difficult to arrive at a precise estimate of future enrollments in arts and science educational programs because of the complex nature of the demand factor. However, it seems reasonable to expect that by 1978 the University of Missouri will have an enrollment of 22,000 students in baccalaureate programs and 6,000 seeking the master’s and the doctoral degrees in arts and science programs. This growth will be primarily on the Columbia, Kansas City, and St. Louis campuses and in the physical sciences at Rolla.

![THOUSANDS OF STUDENTS](chart.png)

1978: 14,120 undergraduate, 1,279 graduate
1978 projected: 22,000 undergraduate, 6,000 graduate

ENROLLMENT IN ARTS AND SCIENCE PROGRAMS AT THE UNIVERSITY OF MISSOURI—1968 AND 1978 (PROJECTED)
BUSINESS AND PUBLIC ADMINISTRATION

overview

The tremendous size and complexity of modern business, industry, and government have created a demand for competent management that remains in continually short supply in spite of the combined efforts of the nation's schools of business and public administration. The principles of good management are applicable to a variety of activities such as engineering, industry, education, government, health and medical care, banking, commerce, and agriculture. Consequently, management courses are usually combined with other areas of study, so that the student has a basic knowledge of the activity to be administered. Thus, the academic program of the school of business and public administration is integrated with the programs of other schools and includes fundamental courses in arts and science.

Although administration and management function at all levels of organization, it is top management that in recent years has increasingly relied upon the university to supply its needs, and graduate education has been the natural recipient of this rising demand. At the other extreme, the school of business faces a problem that is familiar to all schools, which is defining the areas that are to be excluded from its programs. While the current trend of many university programs is toward graduate programs that prepare and retrain students for higher management positions, there continues to be a need for programs that prepare students for various roles in special fields such as accounting, investment, real estate, and insurance.

present program

The program in business and public administration at the University of Missouri is expanding and evolving. Student enrollment in the baccalaureate program is steadily rising, and a substantially greater increase is occurring at the graduate level. The Kansas City campus is emphasizing graduate study in administration, while the St. Louis campus is moving toward an urban-oriented approach in business training. Currently, about 1,400 junior and senior students are enrolled in business and public administration programs on the four campuses, the freshman and sophomore years being spent in arts and science and other basic content programs. About 680 students are enrolled in graduate programs of business and administration. In 1967 baccalaureate degrees were awarded to 412 students, while graduate students were awarded 127 Master's and 3 Ph.D. degrees in business and public administration. In addition to degree programs, business and public administration has been involved heavily in the continuing education needs of individual managers and public and private organizations.

demand

Because the production and distribution of goods and services is big business in almost all categories, and because government is heavily involved in the process, the demand for college-trained management and administration personnel is great. The increasing concern of the United States with the welfare of other nations is adding another dimension to the national demand for persons with administrative competence. Unquestionably, much of the economic welfare of this nation will depend upon the ability of universities to train a sizable cadre of highly capable managers and administrators. This is also true of the State of Missouri, where there will be continuing demand of considerable strength for the foreseeable future.

supply

Currently, about 90 percent of the business and public administration enrollees at the University of Missouri are from the State of Missouri. A somewhat smaller percentage of graduate students list the state as their home residence. The number of qualified students seeking admission to business and public administration programs has been steadily increasing and presently about equals the number that can be admitted. All studies indicate that both the supply of qualified students seeking admission and the demand for graduates of the University of Missouri School of Business and Public Administration soon will exceed the personnel and faculty capabilities of the University.

projection

Because of the growing demand for graduate study in business and public administration, the University of Missouri anticipates, and is preparing for, a somewhat larger increase in graduate enrollment than is expected in the baccalaureate program. By 1978 enrollment in the junior and senior years of Business and Public Administration Schools at the University should increase from the present 1,400 to about 3,000. In the graduate programs the increase is estimated to be from 680 to about 2,300 by 1978. These enrollment increases will occur on the Columbia, Kansas City, and St. Louis campuses.
EDUCATION

overview

Modern society is concerned that each individual receive the maximum education throughout his lifespan that his inherent capabilities will permit. Only in this way can he maximize his personal satisfactions and his contribution to the society of which he is a member. Although the direct concern of the University is with the provision of higher education, through its Schools of Education it is indirectly involved with education at the pre-school, grade school, high school, post-high school, and junior college levels. The educational functions of the Schools of Education may be divided into two categories:

- Preparation of teachers for all levels of education from pre-school to college and adult education.
- Preparation of personnel to serve in allied educational positions, including guidance counsellors, supervisors of various professional and non-professional personnel, school and other educational administrators, educational researchers, and other types of special-service personnel.

The contribution of schools of education is potentially of great importance nationally and to the State of Missouri. That portion of the population that has the capacity for baccalaureate and graduate study spends 12 years in pre-college formal education during which habits, attitudes, and basic knowledge are being acquired. This preparatory period is critical to the student's later performance in higher education, and it is largely dependent upon the quality of instruction he receives. But this instruction is just as important for the student who will terminate his formal education below the college level, including the exceptional student with mental, emotional, or physical deficits. Teaching methodology, skills, and organization are vital to the success of educational programs at the pre-college level. It is the function of schools of education to provide the trained personnel who can accomplish this objective.

present program

The University of Missouri now offers programs leading to the baccalaureate, master's, and doctoral degrees in education. Current graduate and undergraduate enrollment is about 6,200, and in 1967 baccalaureate degrees were awarded to 861 students, master's degrees to 529 students, and doctoral degrees to 38 students. Because teachers must acquire a sound basic knowledge of the discipline in which they will be instructing, as well as the methodology and skills of the teaching profession, school-of-education programs are integrated with those of other schools of the University. The proper distribution of content and method courses is a continuing concern of the schools of education. An essential part of educating teachers is actual training in teaching situations under faculty supervision. Teacher training and research laboratory arrangements have been made by the University of Missouri with a number of schools, and one campus school is operated for this purpose. The research program in education is concerned with the learning process and the ways in which expanding technological knowledge may be used to assist educational growth.

Although the faculty of institutions of higher education seldom avail themselves of teaching methodology resources, the University of Missouri is moving in this direction through cooperative arrangements between the Schools of Education and the faculty of other education programs.

demand

During the past 10 years, the Missouri State Teachers Association estimates, there has been an average annual increase of more than 1,000 in the number of teachers hired by Missouri elementary and high schools. The increase between 1965-66 and 1966-67 was 2,400, and in August, 1967, there were an additional 1,600 unfilled positions in Missouri schools.

It appears inevitable that there will continue to be an increase in the demand for good teachers, and these teachers represent a demand for graduate training. Added to this is the effect of pronouncements by professional organizations, such as the American Association of School Administrators, that six years of work be minimal for certification in administration and supervision. It is also clear that there will be a continuing need for more college administrators, teachers, and special service personnel as college enrollments increase. Also, the
current emphasis on education as a partial solution to inner-city problems and to the care needs of persons with mental and physical deficits has enormously increased the demand for training in special education. The combined demand for teacher education is stable and very strong.

**supply**

Data assembled by the National Education Association for Missouri show that schools in Missouri have graduated annually between 3,400 and 4,600 teachers in past years, but that only about 57 percent of newly qualified teachers actually enter Missouri school systems. The need of existing teachers for additional college instruction is evident from the fact that 769 have fewer than 120 hours of college credit, and 21,000 do not possess the master’s degree.

The number of qualified students seeking admission to the University of Missouri Schools of Education has been steadily increasing, so that during the past 12 years enrollment has tripled. There is every reason to expect that the supply of students will more than match the educational facilities that will be available at the University of Missouri during the next 10 years.

**projection**

During the next 10 years, the University of Missouri expects the demand for teachers and school administrators to continue its past rate of increase and is prepared to maximize the supply within the limits of available resources. There undoubtedly will be some changes in elements of the total demand, and these will be evaluated and accommodated. Graduate study will expand more rapidly than undergraduate enrollment, and plans have been made for this change. It is anticipated that by 1978 undergraduate enrollment will have risen to 12,000 and graduate enrollment to 4,000. Based upon demand from the school systems of Kansas City and St. Louis, much of this growth in enrollment probably will be on those two urban campuses. The University will continue to support its three Schools of Education located on the Columbia, Kansas City, and St. Louis campuses.
ENGINEERING

overview

Engineering is the profession in which a knowledge of the mathematical and natural sciences, gained by study, experience, and practice, is applied with judgment to develop ways to utilize economically the materials and forces of nature for the benefit of mankind. In a recent report from the Rand Corporation forecasting the world of the future, two major areas of development were pointed out:

- Large scale systems created for the development, control, and use of our natural resources.
- Continual development of:
  1. Automated manufacturing industries.
  2. Synthetic foods to meet the needs of an expanding world population.
  4. Space programs and design of more efficient and humane military defense systems.
  5. Bio-social systems having to do not only with medical advances, housing, community development, and pollution control, but also with the coordination into large scale social systems, such as vast metropolitan complexes which will utilize technological knowledge more effectively.

Each of these developments contains the promise of greater well-being for the people of the United States and the world. However, each change may create new and probably unanticipated problems that will have to be solved by the engineer. These advances will call for engineering and technological talent on a scale never before seen.

The history of engineering education in the United States in the last half century reflects the influence of two strong trends. On the one hand, there has been a constant desire for a unity of purpose in engineering education and for uniformity of standards and practices within the various branches, together with a growing tendency to emphasize fundamental principles. Conversely, there has been a strong tendency toward diversity in the content of engineering programs in all branches. The need for rounding out the engineer's technical knowledge with social and humanistic studies has long been recognized. More recently, widespread acceptance of other types of specialized training, for example statistics and computer programming, is further adding to the breadth and diversity of material considered essential to the basic needs of all engineers. The time which can be devoted to technical specialization has necessarily become limited; this has occurred in a period when knowledge has been growing at an accelerated pace and technical demands on engineering graduates are greater than ever before. It is, therefore, not too surprising that the holder of an engineering baccalaureate has increasingly looked to graduate-level education as a means to provide himself with the high level of technical proficiency required to permit him to cope with the technical complexities and engineering demands of his specialty.

present program

The University of Missouri, through the Schools of Engineering at Columbia and Rolla, offers the baccalaureate, master’s, and doctoral degrees. While most degrees are granted in the traditional programs of chemical, civil, electrical, and mechanical engineering, there are substantial enrollments in agricultural, industrial, and metallurgical engineering, and somewhat smaller ones in aerospace engineering, engineering mechanics, geological engineering, mining engineering, nuclear engineering, petroleum engineering, and sanitary engineering programs.

Total undergraduate enrollment is about 5,000 students, and an additional 700 are enrolled for the master's and doctoral degrees. In 1967 the University of Missouri awarded 750 baccalaureate degrees, 213 master's degrees, and 22 doctoral degrees in engineering.

demand

The Final Report of the Committee on Goals of Engineering Education of the American Society for Engineering Education contains the following statement:

"Moreover there is little doubt that, in addition to new varieties of occupational specialties, the future will bring an increasing demand for larger numbers of engineers in all areas. The proportion of engineers in the total work force in the United States has been growing for many years, and there is every reason to believe that this trend will continue. Indeed, with the rapid development of scientific knowledge since World War II and the growing demand to put this knowledge to use in the production of goods and services that can help the economy grow, the shortage of scientifically trained personnel has become a matter of national concern. Recent projections made by educational, governmental and professional groups agree that society's needs in the future will call for engineering and technological talent on a scale never before seen. It is recommended, therefore, that opportunities for engineering education be greatly expanded not only in existing institutions but also in new institutions being created to meet the mounting demands for higher education in general. . . . In engineering, the number of master's degrees awarded annually has grown by almost 2.8 times during the same period, and the number of doctorates by over 4 times. The projections made in the Goals Study, as well as others by the Office of Education, the National Science Foundation, the President's Science Advisory Committee, and the Engineers Joint Council, all indicate substantial and continued growth at the graduate level.

Although demand data for the State of Missouri are not readily available, there is no evidence to indicate that it varies from that of the nation as a whole, except perhaps in a stronger need for graduate engineers by Missouri organizations. It is
paradoxical that, with the great need for engineers, the national undergraduate enrollments have remained virtually unchanged during the past 10 years while general college enrollments have increased significantly.

**supply**

In recent years the enrollment in engineering at the University of Missouri, as a percent of national enrollment, has been slowly increasing. In 1962 undergraduate enrollment at the University was 1.97 percent of the national total and in 1966 the percentage was 2.28. Graduate enrollment at the University of Missouri in 1962 was .68 percent of the national and by 1966 had risen to .95 percent. In Missouri there are three institutions with accredited programs in engineering: the University of Missouri and two private institutions, Washington and St. Louis Universities. In 1965, the last year for which total figures are available, the University of Missouri awarded 72 percent of the baccalaureate, 75 percent of the master's, and 74 percent of the doctoral degrees awarded in the state. Indicative of the increasing supply of engineers with graduate degrees are the national ratios of graduate to baccalaureate degrees awarded in 1955 and 10 years later. In 1955 the number of master's degrees awarded was 22 percent of the baccalaureate degrees, and by 1965 this figure had risen to 37 percent. For doctoral degrees the figures were 3 percent in 1955 and 6.5 percent in 1965. Over the same period B.S. degrees in engineering increased 60 percent, while M.S. degrees awarded rose 170 percent and Ph.D. degrees 250 percent. At the University of Missouri undergraduate enrollments in engineering increased 26 percent from 1962 to 1966, while graduate enrollments rose 118 percent during the same period.

A recent survey by the United States Office of Education records the rapid rise since 1955 in doctoral degrees granted in engineering as compared to other fields. The survey also predicts that, in less than a decade, engineering, which only a few years ago lagged far behind other professions in doctoral degrees, will have achieved first place. In fact, the combined engineering and physical science degrees will exceed one-third of all doctorates granted.

To date, the University of Missouri has been able to accommodate the increasing numbers of qualified undergraduate students applying for admission to engineering programs.

**projection**

The Final Report of the American Society for Engineering Education has made the following forecast:

What seems to be happening is that from every quarter—practicing engineers, employers of engineering talent, educators, and students themselves—pressure is being exerted to raise the level of basic engineering education and to include in the preparation for general engineering practice not merely additional undergraduate courses but at least a year of training at the graduate level—in short, to increase the generally accepted academic requirements for entry into the engineering profession. There is little doubt that during the next decade we will witness a rapidly developing consensus that the master's degree should be considered the basic professional degree in engineering. Indeed, it is estimated that by 1978, about one engineer in seven will go on to a doctorate.

Although this emphasis on graduate study has not been accepted by the entire engineering profession, the University of Missouri anticipates, and is planning for, a baccalaureate enrollment in engineering approximating 8,500 students by 1978 and a graduate enrollment approaching 2,000. These enrollments will occur in the School of Engineering on the Columbia and Rolla campuses, although some of the students may be attending classes on the Kansas City and St. Louis campuses.

As the engineering programs become more sophisticated and shift to the graduate study level, many positions in industry requiring a lesser involvement in science and mathematics will find their manpower needs satisfied in substantial amounts by graduates of two-year technician programs. This course work is post-high school education and not of a nature appropriate for transfer to an engineering curriculum. Its objectives are different and the level upon which certain courses are taught does not provide the proper background for continued development in the engineer. However, it is important that through the junior college movement or at separate institutions, two-year terminal technician programs be developed in addition to the feeder programs to engineering colleges leading to four-year engineering or four-year technology programs.
In recent years man's knowledge about himself has grown at an accelerated rate and has supported a rapid expansion in his capability for health improvement. This capability, combined with a high level of income, has fostered a demand for health services that has all but swamped the health resources of the nation. Current studies of health manpower demonstrate a considerable spread between demand and supply, and in most areas this discrepancy is not decreasing.

The University of Missouri is concerned about these shortages of health manpower and has taken major steps to deal with the problem. However, the training of competent health personnel is a long and complicated process requiring patients, patient-care facilities, and a high degree of integration among a variety of disciplines. It is an expensive procedure, and, if quality is maintained, the output per program is discouragingly small. Because of these unique characteristics, the several educational programs with primary focus on the health professions are considered together.

ALLIED HEALTH PROGRAMS . . . undergraduate

overview

Efficient use of scarce and expensively trained health manpower occurs only when both over- and under-utilization are minimized. To accomplish this objective, a manpower pattern must be devised where competence and training are precisely adjusted to the job to be done. In this pattern, technicians play a substantial role, and training an adequate supply for the health services area is a major means of conserving the short supply of more expensively and intensively trained professional personnel. The University of Missouri has developed a sizable but realistic program of training allied health technicians: the program is making a strategic contribution to the acute health manpower shortage in Missouri.

present program

The University of Missouri now offers, or will offer in the immediate future, baccalaureate degree education in the following allied health professions: dental hygiene, dietetics, inhalation therapy, medical record library science, medical technology, occupational therapy, orthoptics, orthotics, physical therapy, prosthetics, and radiologic technology. Approximately 350 students are currently enrolled in these courses and about 75 graduated in June, 1968.

demand

The current demand for graduates of the allied health programs, nationally and in the State of Missouri, is one of substantial strength and stability. Informed estimates describe the demand as increasing in strength over the next 10 years with no likelihood of market saturation.

supply

The supply of trained allied health personnel in all cases is substantially below demand and demonstrated need. Also, the number of qualified students applying for admission to these programs is double to seven times the number of those who can be accommodated. Little change in this supply situation is expected during the next 10 years.

projection

It is likely that during the next 10 years additional allied health manpower areas will evolve, and new educational programs will be initiated to supply their needs. However, planned expansion of present programs at the University of Missouri should be producing 540 Bachelor of Science and 35 Master of Science graduates, with a total enrollment of about 2,300 students by the year 1978. This proposed increase is based upon what appears feasible to the University, including new programs at Kansas City and St. Louis, but will not come close to satisfying the demand for these graduates.
ALLIED HEALTH PROGRAMS . . . graduate

overview
Because of the supportive and complementary nature of the various allied health positions, the training requirements tend to vary considerably in nature and degree. A very important segment is firmly oriented toward applicants with graduate degrees. The educational programs for graduate degrees fall into three categories: public health, biological science, and a miscellaneous group that ranges from medical illustration to information science.

present program
Although the University of Missouri does not now have a school of public health, the elements for this program have been rapidly developing in the School of Medicine. Currently, there are 24 students enrolled in the Health Services Management program leading to the master's degree and 60 enrolled in other public health courses leading to the Master of Science degree. Graduate enrollment in health-oriented bio-sciences is 372 at present. These are candidates for master's and doctoral degrees. Although several graduate programs are about to be launched in the miscellaneous category of allied health professions, none is functioning at present.

demand
The demand for graduates of public health programs is largely for administrative and technical staff for a variety of health care institutions, including hospitals and the various levels of government. A substantial number of the positions requiring this level of training are either unfilled or occupied by staff with deficient training. Thus, a strong demand for these graduates has existed for some years without apparent change.

Graduates in the bio-sciences tend toward the doctoral level and enter research or teaching positions. The dependence of the health professions upon the bio-sciences is basic and critical. Satisfactory movement in the entire health field cannot occur when there is inadequate representation at the graduate level of the bio-sciences. The demand is long standing, is strong, and shows no likelihood of declining.

The demand for personnel with graduate training in some 12 different disciplines related to health is becoming apparent; the University, recognizing these emerging areas, is planning educational programs for them. When the demand is visible and adequate, these programs will be initiated.

supply
The supply of adequately trained personnel in public health and bio-sciences is substantially below the current demand, and in the miscellaneous category, the supply is almost nonexistent. At the rate well-trained graduates are being produced, there is little likelihood of any sizable increase in this supply. Currently, the number of students seeking graduate training in public health and in the health-oriented bio-sciences is stabilized at several times the number that can be accommodated.

projection
It is conservatively estimated that by 1978 there will be 175 graduate students enrolled in public health courses, 875 taking course work toward master's and doctoral degrees in health-related bio-sciences and 400 enrolled in new discipline graduate health-related programs. These new discipline graduate programs will probably include therapeutic recreation, behavioral sciences, information sciences, radiology, toxicology, medical technology, physical therapy, occupational therapy, dental hygiene, medical illustration, and nutrition.

The enrollment estimate for the graduate program in public health is predicated upon the creation of a school of public health or possibly of allied health professions. Plans for this unit have been under development for some time and will probably be implemented during the next several years on the Columbia campus.
DENTISTRY

Overview

University of Missouri dental education is centered in a School of Dentistry located in Kansas City, where new facilities now under construction will be ready for occupancy within two years. The school functions somewhat as a regional resource in that it is a principal source of dental education for students from Arkansas, New Mexico, Kansas (these three states provide direct or indirect financial support for their students attending this school), Oklahoma, Colorado, Utah, and Hawaii. There are two other schools of dentistry in the state, one at Washington University and one at St. Louis University. However, St. Louis University has publicly stated that its School of Dentistry is to be terminated; the last freshman class was admitted during 1967-68.

Present Program

The education of dental students is a four-year professional program based on three to four years of undergraduate education. Advanced graduate work beyond the normal four-year period is offered, and continuing education is increasing in importance. Presently, there are 467 dental students, 56 graduate dental students, and approximately 175 student days of continuing education. The graduate program is offered in the biomedical sciences and in the recognized specialties of dentistry. Affiliations with Kansas City General Hospital and Medical Center, Children’s Mercy Hospital, Kansas City Veterans Administration Hospital, and Wadsworth Veterans Administration Hospital permit training of interns and residents in oral surgery, pedodontics, periodontics, and prosthodontics. The other specialists of dentistry are trained within the dental school.

Demand

In its November 1967 Report, the National Advisory Commission on Health Manpower estimates that the demand for dental services in the United States will increase between 100 and 125 percent in the period 1965-75. During the same period the supply of dentists is expected to increase by 16 percent. With continued increase in the use of auxiliary personnel and with further improvements in dental technology, the Commission calculates that total production of dentists may increase by as much as 50 percent. However, such an increase will still fall seriously short of meeting the expected demand.

Supply

The supply of qualified applicants considerably exceeds the available spaces nationally and at the University of Missouri. In 1966 the schools of dentistry admitted 5,942 first-year students from 10,000 qualified candidates, and a higher ratio prevails in Missouri. However, the number of qualified candidates from Missouri is relatively low and is about half the 125 new dentists entering practice in Missouri in 1967. The reasons for this are being explored, and steps will be taken to remedy the deficiency. The UMKC School of Dentistry also serves as the dental school for Kansas, through an exchange program between the Curators of the University of Missouri and the Regents of the University of Kansas; and for New Mexico and Arkansas, through monetary reimbursement agreements.

Projection

With the completion of the facilities now under construction, dental education programs can and will be expanded to satisfy some of the demand that exists and that will develop in the decade ahead. It is estimated that by 1973 there will be 600 dental students, 115 graduate dental students, and between 4,000 and 5,000 student days of continuing education in dentistry. The increased enrollment will be accompanied by a considerable rise in staff, and thus in basic and applied dental research, thereby creating a dental educational center that will make a maximum contribution to the health of the resident population of Missouri. This program will be located only on the Kansas City campus.
The physician is the most intensively and extensively trained professional person in the entire health field. His formal education requires four years as an undergraduate and four years in a school of medicine before the M.D. degree is awarded. Then he must spend from one to seven years as an intern and resident, depending on his specialty, before he begins practice. Because of the obsolescence rate in medical knowledge, the physician must continually replenish his initial education, and this is increasingly based upon formal educational programs in the university setting. Thus, the university medical school has become the primary source for basic and continuing medical education, and hence is responsible, to a considerable extent, for the quality of medical care provided to the resident population.

The modern school of medicine is a medical center complex wherein is housed a variety of activities. The first two years of medical education are in the basic sciences, which also provide graduate study programs in the areas of medicine. The second two years are clinic oriented and require both inpatient and outpatient facilities of substantial size—a hospital of about 500 beds and 100,000 outpatient visits annually. Research is an essential element of medical education; and scientific investigation by graduate students, medical students, residents, and faculty is a continuous activity. Throughout this maze of instruction, research, and service, a variety of allied health students, such as nurses, physical therapists, and medical technologists, are in training. This complex usually constitutes the largest single interrelated series of activities in the modern university.

Although the cost of this educational complex is high, it is largely so because of the service component. While this service to patients is absolutely essential to a quality educational program, it is an expense which otherwise would be borne by the state and local governmental units and perhaps should not be considered as part of the cost of educating physicians and allied health personnel.

Present program

In September, 1967, the School of Medicine admitted 92 students to its first-year class. In September, 1968, because of new facilities to be made available, the first-year class will be increased to 100 and be stabilized at this number. Thus, by 1970 there will be 370 medical students in training.

Currently, the School of Medicine has facilities at the Medical Center for 116 interns and residents. In addition, the school has educational affiliations covering the training of 176 interns and residents as follows: General Hospital and Medical Center of Kansas City—96; Children’s Mercy Hospital at Kansas City—13; Missouri Institute of Psychiatry at St. Louis—50; Missouri Baptist Hospital at St. Louis—17.

A variety of continuing education programs for practicing physicians has been developed by the University of Missouri and is presented at the Medical Center and in various population centers over the state. Use of various forms of communication media and devices for these programs is being explored.

Demand

The composite demand for physicians arises from the areas of private practice, public health, health administration, and health education. The supply is also a composite of graduates of schools of medicine and schools of osteopathy, each stratified by degree and kind of special training. Because of this composite nature of demand and supply, the changing nature of health care, the increasing competence of health personnel, the sizable growth of health facilities, and the rise in consumer incomes, the strength of demand for physicians with the M.D. degree has been difficult to measure with precision. However, all reliable studies, by whatever realistic criteria, indicate a demand of increasing proportions in recent years. This demand exists nationally and also in the State of Missouri; it is especially acute in non-metropolitan areas.

Supply

While the ratio of physicians (M.D.) has stayed nearly constant over the last 30 years for the nation, in Missouri the ratio has declined from 172 practicing physicians (M.D.) per 100,000 population in 1921 to a low of 115 in 1961 and a slightly higher 120 per 100,000 in late 1965. However, the State of Missouri is served by a substantial number of physicians with the D.O.
degree, and when they are added to the State of Missouri and the national physician population, the following physician-to-population ratios are disclosed for December 31, 1965:

United States 145/100,000
Missouri 149/100,000

Also, this average ratio of 149 physicians per 100,000 Missouri population obscures a rather wide variation within sections of the state:

M.D. + D.O./100,000 Population

<table>
<thead>
<tr>
<th>Region</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Louis</td>
<td>177</td>
</tr>
<tr>
<td>Kansas City</td>
<td>177</td>
</tr>
<tr>
<td>Central</td>
<td>145</td>
</tr>
<tr>
<td>Northern</td>
<td>123</td>
</tr>
<tr>
<td>Springfield-Joplin</td>
<td>118</td>
</tr>
<tr>
<td>Southeast</td>
<td>82</td>
</tr>
<tr>
<td>Central Ozark</td>
<td>63</td>
</tr>
</tbody>
</table>

Currently, in Missouri there are three schools of medicine (at Washington University, St. Louis University, University of Missouri) and two schools of osteopathy (Kansas City College of Osteopathy and Surgery, Kirksville College of Osteopathy and Surgery). Following is the 1966 and anticipated future enrollment of first-year students for each of these five schools:

<table>
<thead>
<tr>
<th>M.D. Schools</th>
<th>1966</th>
<th>1970</th>
<th>1976</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington University</td>
<td>88</td>
<td>109</td>
<td>109</td>
</tr>
<tr>
<td>St. Louis University</td>
<td>115</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td>University of Missouri</td>
<td>85</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D.O. Schools</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kansas City College</td>
<td>106</td>
<td>117</td>
<td>117</td>
</tr>
<tr>
<td>Kirksville College</td>
<td>101</td>
<td>106</td>
<td>112</td>
</tr>
<tr>
<td>Total (M.D. and D.O.)</td>
<td>495</td>
<td>560</td>
<td>566</td>
</tr>
<tr>
<td>Increase</td>
<td>-</td>
<td>65</td>
<td>6</td>
</tr>
</tbody>
</table>

Thus, at the current rate at which physicians are being graduated by Missouri schools and retained for practice in the state, the ratio of physicians to population during the next nine or ten years will decline from 149 to 139 per 100,000.

Only a portion of the physicians graduated from the five Missouri schools remain to practice within the state. Based largely on past experience and anticipated enrollments, the following estimates were made of the number of graduates (1967-75) who would remain to practice in Missouri:

<table>
<thead>
<tr>
<th>School</th>
<th>Graduates to be added (1967-75)</th>
<th>Out-of-state physicians to be added by 1975</th>
<th>Total new physicians added 1966-1975</th>
<th>Number Missouri physicians remaining by 1975</th>
<th>Total Missouri physicians projected for 1975</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missouri graduates</td>
<td></td>
<td></td>
<td>1,595</td>
<td>5,660</td>
<td>7,255</td>
</tr>
<tr>
<td>Physicians in Missouri in 1966</td>
<td></td>
<td></td>
<td>6,708</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected deaths 1967-1975</td>
<td></td>
<td></td>
<td>1,048</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Missouri physicians remaining by 1975</td>
<td></td>
<td></td>
<td>5,660</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Missouri physicians projected for 1975</td>
<td></td>
<td></td>
<td>7,255</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A careful evaluation of the national and the statewide demand for physicians, and also for allied health personnel, indicates the current rate of training will not reduce the substantial spread between demand and supply. Consequently, the University of Missouri has concluded that additional medical center facilities and personnel must be initiated early in the next 10 years so that an additional 100 medical students can be enrolled each year. This medical center complex could provide the base for a similar expansion in training competence for interns, residents, and allied health personnel. As a considerable lag will exist between initiation and the first graduating class (three years construction plus four years medical school), an early beginning would appear desirable. The location of this additional medical school facility could be at Columbia or at Kansas City, and the advantages of each site are now under study by the University.
NURSING

overview

Nursing occupies a key position that closely approximates the importance of physicians in health care. The interrelationship of the two professions is such that a shortage of nursing aggravates a deficiency of physicians, while an adequate supply of nurses can modify the deleterious effects of doctor shortages.

Nursing education is primarily an undergraduate activity and functions at several discrete levels. The licensed practical nurse is trained to deliver direct patient care and receives a certificate or diploma after about one year of vocational education. Registered nurse programs are of three types: (1) Diploma programs in single-purpose hospital schools providing three years of training, primarily for work in hospitals; (2) Associate degree programs usually offered by community or junior colleges in concert with a hospital and covering two years of school and clinical training; and (3) Baccalaureate-degree programs providing four to five years of basic university and hospital training. The baccalaureate program alone provides adequate education for graduate study. Customarily, universities have limited their nursing-education programs to the baccalaureate and graduate degree levels of training.

present program

Of the 800 students now enrolled in baccalaureate and master's degree programs of nursing education in Missouri, 313 are at the University of Missouri. Although the University of Missouri does not now award the master's degree in nursing, in the fall of 1968 the first students seeking this degree will be admitted.

demand

The findings of health manpower studies in recent years demonstrate a very strong demand for nursing service but seldom distinguish among technical, baccalaureate, and graduate professional nurses. However, the 1963 report of the Surgeon General's Consultant Group on Nursing, in estimating the need for increasing the number of graduates from baccalaureate and higher degree programs between 1961 and 1970, stated:

Because of the need for nurses in teaching and leadership positions, the highest priority for expansion is in the baccalaureate and graduate programs. The baccalaureate programs should double their graduates and the graduate program capacity should be tripled.

By 1966 the number of baccalaureate graduates had increased only 21 percent and advanced degree graduates by 27 percent.

In Missouri, the report of a survey conducted by the State Division of Health in the fall of 1967 shows that 1,353 budgeted full-time and 266 budgeted part-time positions for registered nurses were reported unfilled in Missouri hospitals, public health agencies, nursing homes, and educational programs for nurses. The survey did not include physicians' offices, industries, and a variety of other agencies employing nurses. All indicators forecast a continuing demand for nursing service.

supply

Manpower studies have shown that for every registered nurse in active duty, there are several who have retired from the profession to rear families or work in other occupations. Efforts to update and entice these nurses out of retirement have been only moderately successful. Effective continuing education programs are essential to this effort, and the University of Missouri considers them an important segment of the entire nursing education programs.

The number of qualified applicants seeking admission to the baccalaureate program of the University of Missouri is substantially larger than the number of positions available. In 1967 more than 300 applied for admission, and of those denied entrance, 45 ranked in the top one-third of their high school graduating classes. Many students denied admission to the nursing program enroll in other university programs, hoping to be admitted to nursing at a later date.

projection

Plans are nearing completion for a sizable expansion in the baccalaureate and graduate programs in nursing. On the Kansas City and St. Louis campuses baccalaureate schools of nursing are planned, and it is anticipated they soon will be initiated. It is anticipated that by 1978 there will be enrolled in the University of Missouri nursing programs 800 baccalaureate students and 54 graduate students seeking the master's or doctoral degree. In addition, it is imperative to develop a continuing education program that will minimize the knowledge and skill obsolescence that is currently so wasteful of nursing resources.
PHARMACEUTICAL EDUCATION

overview

A significant portion of modern medical therapy involves the use of drugs, and the number of these pharmaceuticals has expanded tremendously in recent years. Pharmaceutical education includes the entirety of man's knowledge concerning drugs; their discovery, development, manufacture, distribution, legal requirements, preparation, analysis, dispensing, use, effects, metabolism, and excretion. The typical pharmacy graduate spends two to four years completing the undergraduate pre-pharmacy requirements and then completes the three years of professional study at a school of pharmacy. After a year of internship experience, as required by the Board of Pharmacy, the graduate is licensed as a pharmacist. At this point, he is capable of fulfilling most responsibilities called for in the practice of community general pharmacy or hospital pharmacy.

Since World War II, the sophisticated advances in medicinals, the dosage forms and distribution systems, have brought about a demand for pharmacists with advanced education in such fields as hospital pharmacy, industrial pharmacy, governmental food and drug agencies, and education.

present program

There are two schools of pharmacy in Missouri: the St. Louis College of Pharmacy (a private college) and the University of Missouri-Kansas City School of Pharmacy. Currently, these two schools are graduating a total of 90 students each year, the University of Missouri supplying slightly less than half of the total. About 56 percent of the St. Louis College of Pharmacy enrollment comes from Illinois, and 35 percent of the University of Missouri School of Pharmacy enrollment is from Kansas. Approximately 60 percent of the graduates from the two schools remain in the State of Missouri to practice.

demand

The United States Public Health Service recently estimated that 15,000 additional pharmacists were needed in the nation to satisfy current demand. In Missouri the number of practicing pharmacists is declining, and more than 30 percent of those in practice are over 60 years of age. Available evidence indicates an unsatisfied demand for retail pharmacists, or pharmacists capable of supervising hospital and nursing home pharmacies, and of pharmacists competent in research and other fields requiring graduate education. The educational institutions in Missouri are not producing enough graduates to prevent a continued decline in the number of pharmacists. Thus, the demand is strong and stable and will continue for many years into the future.

supply

Prior to 1960 the number of pharmacists remained rather stable in the State of Missouri, but in the seven years since that date there has been a decline of 400. At the rate pharmacists are being produced, it is anticipated the decline will continue, though at a slower rate. The supply of pharmacists with graduate training is currently almost non-existent in Missouri.

Presently, the number of qualified Missouri applicants for enrollment is somewhat below the number that could be admitted to the Schools of Pharmacy. Improvement of this deficiency would result in a somewhat larger percentage of graduates remaining in the state.

projection

Considering the national and local demand for pharmacists and the rapidly developing requirements for pharmacists with graduate degrees, the University of Missouri is planning a program expansion that by 1978 will produce about 100 baccalaureate graduates and some 30 master's and doctoral degree graduates in pharmacy each year. This program will continue to be offered only on the Kansas City campus. The need for continuing education of pharmacy graduates is being carefully evaluated, and appropriate educational programs are being prepared for early initiation.
VETERINARY MEDICINE

Overview
Veterinary medicine is concerned with the health of animals as sources of food and related items for human consumption, as pets, and for study as biological systems similar to those of man. While the health of food animals and pets is very important to mankind, in recent years the use of animals in comparative medicine research has permitted tremendous strides to be taken in man's knowledge about his own health. Thus, in addition to the increasing demands for healthy consumer animals and pets associated with an expanding population, the human health knowledge explosion has placed a high premium on professional veterinary medicine.

Present Program
The only school of veterinary medicine in Missouri is at the University of Missouri. Prior to 1965 this school admitted about 30 new students and graduated a similar number each year. In 1965 the first-year class was expanded to 60 students, so that by 1969 the University of Missouri will be graduating about double the present number. The school also has 65 graduate students, 26 working toward the Ph.D., and 39 for the M.S. degree. The graduate program is new, and this year will award 20 M.S. and 3 Ph.D. degrees.

The Doctor of Veterinary Medicine degree is granted to students who are admitted to the school after completion of from two to four years of baccalaureate studies and satisfactory completion of the four years of professional study at the School of Veterinary Medicine. Additional formal study and research is required for graduate degrees.

Demand
During the past several decades a stable growth in the need for veterinary medicine practitioners has correlated with increases in animal and human population. Superimposed upon the traditional growth of demand has been a nearly explosive situation that started within the last decade and seems to be accelerating at an increasing tempo. Comparative medicine is fast developing into the most significant area of opportunity in veterinary medicine. In recent years there has been an acceleration of development in both human and veterinary medicine through teamwork research. As a result, the veterinarian and the physician have been brought together in nearly every phase of animal and human health. The veterinarian is in great demand in biomedical research, laboratory animal medicine, public health, biological production, military veterinary medicine, and regulatory veterinary medicine.

Recently the American Veterinary Medical Association examined the reports of three independent studies and predicted that by 1980 the nation would have about 50 percent of the veterinarians needed.

Supply
Approximately 75 percent of the veterinary medicine licenses granted by the State of Missouri each year are issued to graduates of schools other than the University of Missouri School of Veterinary Medicine. However, the University of Missouri School was able to accept for admission only one of four qualified applicants, which was slightly above the national figure of 1 to 3.3. This demand for admission appears to be so strong that it has been estimated that the ratio would only drop to one-to-three if the University of Missouri increased its admission rate from 60 to 120 per year.

Because of the strong demand for graduates of schools of veterinary medicine, and for admission to these schools, the University of Missouri is looking toward a possible doubling of annual admissions, or from 60 to 120 students within the next 10 years. Possible funding for some of this expansion may be available from adjacent states that do not have veterinary medicine schools.

In like manner, an increase of graduate student enrollment to about 200 is to be expected because of the rapidly expanding demand in this area. The knowledge explosion in human medicine has spread over veterinary medicine, and the obsolescence rate is forcing the development of programs in continuing education. As in other areas of instruction, a considerable growth must occur in these programs if demand is to be satisfied. This program will continue to be provided only on the Columbia campus.
overview

When mankind created social organizations and began to live by codes and laws, knowledge of those laws and their interpretation soon exceeded the capacity of ordinary man and demanded the services of a specialist. Modern society is a fabulously intricate complex of organizations that relate to each other according to their established laws, codes, and unwritten modes of behavior. Not the least of these organizations are the several levels of government that touch and modify in varying degrees the activities of all other social units. In the continuous process of creating, amending, applying, and interpreting this structure of laws, there has evolved the modern profession of legal counsel. The lawyer is trained to occupy, immediately or eventually, positions of importance in government, in public life, in private practice, and in business and financial management. In these positions, he is concerned with modifying, interpreting, and administering law; with protecting the rights of individuals and of organizations; and, increasingly, with the avoidance of legal conflict. These are key functions and of tremendous significance to modern society.

The University of Missouri has been training lawyers since 1872, and during the past 96 years has provided the State of Missouri with some of its greatest statesmen, a considerable number of state and community leaders, sizable numbers in successful practice throughout the state, and many who have occupied top positions in business. Among the graduates have been governors, senators, congressmen, judges, and state legislators. The University faculty has made additional contributions of service to the state and to the nation through research, writings, and counsel. The service has covered many years, and the quality has been consistently high.

present program

The University of Missouri’s two Schools of Law now offer the J.D. professional degree, and one provides an LL.M. graduate degree program. The basic professional degree is built on the baccalaureate degree, usually in arts and science; and the master’s degree is awarded for study beyond the professional program. The law student is required to complete a three-year program of law study before the J.D. is awarded.

In 1968 the University of Missouri awarded 175 professional doctoral and 6 master’s degrees in law. During the 1967-68 school year, 709 students were enrolled in law school programs.

demand

The population-per-lawyer index is slightly higher nationally (621) than for the State of Missouri (586), although since 1960 it has been falling nationally and increasing in Missouri. A related factor is the stability of the national percentage of college graduates who have entered law schools. From 1948 to 1965 this percentage has varied only from seven to nine percent.

The demand for legally trained manpower has steadily increased in recent years, both nationally and in the State of Missouri. In past years law graduates were forced to look for a job, but now they are in such demand that they can deliberate on which position to accept. At the same time that business and community leaders over the state are seeking lawyers who will practice in their areas, there has been difficulty in locating attorneys to serve as prosecuting attorneys and as judges of courts of lesser jurisdiction. Most law schools report increasing numbers of requests for their graduates for placement in large city law firms. It is anticipated that the present demand for law-school graduates will continue to increase for the foreseeable future.

supply

Approximately 90 percent of those enrolled in law school at the University of Missouri are from widely distributed areas of the state. Since 1960-61 the enrollment has increased 67 percent, which may be compared with the 55 percent increase in the law school enrollment of the two private universities for the same period. In 1967 the
University of Missouri had more than 2,400 inquiries about law school admission and accepted about 500 applicants, at least half of whom became law students.

Because of the strong and increasing demand for law school graduates, the rise in college graduates in Missouri, and the fact that graduate-level legal education is on the threshold of substantial increase, the supply of qualified students seeking admission to the University of Missouri law school program should register considerable strength during the next 10 years.

**projection**

Interest in advanced law study is growing, and law schools are experiencing a demand for graduate course work in various areas of specialized law practice. Consequently, the two law schools of the University will be concerned with two major responsibilities during the next 10 years. One responsibility will be the development of graduate training as the demand becomes evident in specialized areas. The second responsibility will be to continue upgrading the regular three-year instructional program. Additional training courses will probably be offered in legal aid (civil and criminal), in continuing education programs for the bar, and in training sub-professional and non-lawyer groups whose functions require some knowledge of the law, such as police officers, law office investigators, court administrators, and governmental agency personnel concerned with legal matters. Faculty of the two schools will continue to undertake applied research for governmental and bar organizations and to expand their basic research in law.

Assuming a steady growth in demand for admission to the basic professional program and increasing requests for advanced study, the University of Missouri should be enrolling about 1,400 students in professional and graduate legal programs by 1978. The University will continue to support only two law schools during the next decade, one at Columbia and one at Kansas City.

**INFORMATION SCIENCE**

It is quite evident that the University of Missouri in its early state of development of a multi-campus university has an opportunity and responsibility to deal effectively and in depth with the new field of Information Science.

In basic research it must thoroughly pursue the most rapid, economical, and effective manner by which the new knowledge arising from research and scholarly endeavor can be translated into action of benefit to the public which it serves. This multi-discipline, multi-campus responsibility will require intensive study in automation, improved communication, increased intra- and inter-university cooperation, and maximum utilization of resources being developed elsewhere. Perhaps the University of Missouri has no other such fertile field of endeavor through which it can serve its students, faculty, and fellow institutions, both in Missouri and elsewhere. It has an impressive array of talented faculty and substantial existing resources to pursue this goal. Key catalytic resources and persons are all that will be required to achieve a portion of national excellence in a relatively brief period of time.
AGRICULTURE, FORESTRY, AND

overview

The original central focus of the land-grant institution was on agriculture and the mechanical arts and the population that was supported by these activities. Using the three functions of a university (teaching, research, service), a well-rounded program was developed. Educational programs at the baccalaureate and graduate levels were made available to qualified students seeking preparation for employment in the broad area of agriculture and related industries. Under an “experiment station,” sizable research efforts were initiated to study all aspects of agricultural activities. Then, through an “extension service,” the land-grant university brought what was known about agriculture directly to those engaged in farming and related pursuits. This trilogy of activities has been largely instrumental in raising agriculture to a level of productivity that far surpasses that in any other nation.

Although in recent years the former primary position of agriculture in Gross National Product and employment has been assumed by other categories, its importance internationally, to the nation and to the State of Missouri, is vital and critical. The quantity, quality, and price of food is, and probably will remain, of serious concern to modern man. Non-food products of farms and forests are strategic materials of society that require careful conservation and intelligent utilization. Consequently, the way in which man cultivates and extracts these products of the soil and the way in which these products are distributed and consumed are still closely associated with the immediate and long-range health and welfare of mankind. Colleges of agriculture are concerned with all of the aspects of this many faceted problem.
present program

Agriculture at the University of Missouri includes a College of Agriculture with 15 departments, a School of Forestry, and a School of Home Economics; each offers baccalaureate, master's, and doctoral degree programs. The accompanying table shows present enrollment and degrees granted (1967-68) in these three programs.

ENROLLMENT IN 1967

<table>
<thead>
<tr>
<th></th>
<th>Baccalaureate</th>
<th>Master's</th>
<th>Doctoral</th>
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<tbody>
<tr>
<td>Agriculture</td>
<td>1,225</td>
<td>160</td>
<td>136</td>
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<tr>
<td>Forestry</td>
<td>218</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>Home Economics</td>
<td>695</td>
<td>76</td>
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</tr>
<tr>
<td>Total</td>
<td>2,138</td>
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DEGREES GRANTED IN 1968

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<th>Master's</th>
<th>Doctoral</th>
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</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>202</td>
<td>70</td>
<td>21</td>
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<tr>
<td>Forestry</td>
<td>43</td>
<td>3</td>
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<tr>
<td>Home Economics</td>
<td>81</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>326</td>
<td>85</td>
<td>21</td>
</tr>
</tbody>
</table>

demand

The total demand for trained personnel in agriculture, forestry, and home economics is a composite of a variety of specific needs. These needs originate in farming, forestry, the commodity markets, homes, producers of agricultural equipment, government at all levels, educational institutions, research, and the consuming public. The strengths of these individual demands are constantly varying, and the university must be continually evaluating, anticipating, and accommodating programs to satisfy their needs. For example, it is estimated that by 1978 there will be a national demand for 26,000 new Ph.D.s in Agriculture, while currently there are only 1,000 Ph.D. degrees being conferred each year. The need for trained forest scientists is particularly acute; predicted average demand over the next 10 years is three times the current production.

An indication of the strength of the total demand can be gained from the fact that there are four positions available for each baccalaureate, master's, and doctoral degree awarded each year in agriculture; three openings for each baccalaureate and five for each master's and doctoral degree awarded in forestry; and five positions available for each degree awarded in home economics.

supply

The supply of qualified applicants seeking admission to the University of Missouri has kept pace with the considerable increase in enrollment, so that it is currently possible to accept all qualified applicants. It is estimated that the number of students seeking to enter agriculture, forestry, and home economics in the next 10 years will increase.
sufficiently to fully utilize the program facilities expected to be made available to them.

**Projection**

Agriculture and the populations supported by it have undergone substantial change since the creation of the land-grant universities, and these institutions of higher education have learned how to adapt to the shifting needs of society. The College of Agriculture is aware that these changes are still occurring and is modifying its program accordingly. From this base of study and forecasting, an estimate has been made of enrollment and degrees to be granted in 1978:

<table>
<thead>
<tr>
<th></th>
<th>Baccalaureate</th>
<th>Master's</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>1,900</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Forestry</td>
<td>340</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Home Economics</td>
<td>1,200</td>
<td>150</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>3,440</td>
<td>500</td>
<td>345</td>
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<table>
<thead>
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<th></th>
<th>Baccalaureate</th>
<th>Master's</th>
<th>Doctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>400</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>Forestry</td>
<td>52</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Home Economics</td>
<td>185</td>
<td>65</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>637</td>
<td>225</td>
<td>110</td>
</tr>
</tbody>
</table>

The major emphasis in program development in the next 10 years will be in the following three areas:

**Food Production, Processing, and Marketing.**

Obtaining food in satisfactory amounts and at the proper time will continue to be a major concern of man, and the development of manpower and technology to respond realistically to this need must be given top priority.

**Life and Environmental Processes.**

The development of more basic information and a complete understanding of the application of genetics and biochemistry to plants and animals must be obtained in order to evolve new approaches, which can result in improved species of plants and animals. The mechanism of resistance of plants and animals to disease and insects must be better understood. Waste disposal, water, and air pollution must be evaluated in light of present and evolving agriculture practices and their interrelationship with man. These biological forms will play an important role in accommodating the press for more products.

**Social and Institutional Readjustment**

As research in all fields expands and new technology is produced and applied, and as man becomes increasingly mobile, sociological problems will mount at an accelerating pace. Hence, attention must be continually focused on the technological stresses imposed upon land communities and institutions and upon marketing arrangements, not alone in rural areas, but in the entire structure of society.

The research program of the College of Agriculture, which is administered through the Agricultural Experiment Station, is and must remain closely intertwined with the education of scientists. The research program is structured so that it is possible to conduct and carry forward fundamental research and at the same time do research which is applied directly to the current problems in Missouri agriculture. Also occurring are developments which make the research program of the College responsive to needs on a regional, national, and international base. The research program of the College of Agriculture will remain viable and responsive to the needs of agriculture.

During the next 10 years, the research program in the College should embrace the assistance and cooperation of scientists in all fields of endeavor. The student graduating with a Ph.D. from the College of Agriculture should be able to respond in a teaching or research role, whether this be in a college of agriculture, private industry, or government service. The scientists participating in the research program will continue to broaden their scope of activities to include programs and problems relating to the international sphere as well as the State of Missouri.

The continuing education program within the College has been a major activity since early 1900. It is anticipated that this will continue to be so in the next decade. The educational programs of agricultural extension will be primarily based and controlled through the departments and schools within the College. Therefore, during the next 10 years, the Agriculture Extension Service will have as its objectives:

- To provide programs which respond to the basic needs of man, whether they be in the farming sector or in the urban-rural fringe.
- To expand the philosophy that a major university and a college of agriculture have an important contribution to make through their extension programs to the continuing education of the people they serve.
- To employ highly trained and qualified teachers and scientists who can respond to the needs of agriculture at all levels.

The University will continue to support only one College of Agriculture, including Forestry and Home Economics, during the next decade. This College is located on the Columbia campus.
JOURNALISM

overview

In the increasingly complex world of today, effective communication has become an essential element of all social organization. It is both a science and an art, is the basis of educational methodology, and is an important focus in professional education such as law, medicine, business and public administration, and engineering. Communication through the mass media of newspapers, magazines, radio, and television falls into a category called journalism. The primary function of journalism is the collection and transmission of the world’s news to interested populations. The individuals performing this function have an appalling responsibility to society. Consequently, the education and training of the professional journalist becomes a matter of vital concern to the society he is to serve.

The University of Missouri School of Journalism began in 1908 and early in its history established a national reputation for quality instruction. This reputation for quality has continued to the present, and as a result more students are enrolled in this school than in any other school of journalism in the world. It has probably the best journalism library in any institution, trains its students through a newspaper and a television station, and has national and foreign newspaper affiliations that permit a wide variety of journalism student training.

Over the years, the School of Journalism has gained international recognition and many honors.

present program

The School of Journalism now offers programs leading to the Baccalaureate, Master of Arts, and the Doctor of Philosophy degrees. As the professional journalist must have a wide basic knowledge in the arts and sciences, the journalism program includes many course offerings from other schools of the University. Also, areas of specialization are available, so that graduate study may partake of educational programs of other professions, such as medicine and agriculture.

Enrollment in the journalism programs has increased 96 percent during the past three years to a current level of 598 baccalaureate, 200 master’s, and 15 doctoral degree students. In 1967 the school awarded 194 baccalaureate degrees, 37 master’s degrees, and 3 doctoral degrees.

demand

The demand for qualified graduates of schools of journalism appears to be rising steadily as more segments of the economy become aware of the contributions in communication that can be made by persons with this kind of training. The reputation of the University of Missouri School of Journalism is so high nationally that demand for its graduates surpasses the annual output by a considerable margin. There is reason to expect this demand to continue into the foreseeable future.

supply

Because of its visibility at the national level, the School of Journalism attracts top-level students from a wide geographic area. These students are applying in increasing numbers, and there is strong likelihood a point will soon be reached where facilities cannot accommodate all who apply. The University will then have to decide whether to increase its educational facilities or to raise its already stringent admission requirements.

projection

Because of the long-standing reputation of the School of Journalism and the key position which it occupies in the state and in the nation, the University of Missouri feels it should continue to accept as large a percentage of qualified applicants as possible and is making plans to accommodate by 1978 an enrollment of 920 baccalaureate and 600 graduate students. This would provide in 1978 approximately 550 baccalaureate degrees, 220 master’s degrees, and 15 doctoral awards. The School of Journalism on the Columbia campus is the only journalism school the University will support during the next decade.
LIBRARY AND INFORMATION SCIENCE

overview

With the recent appearance of the computer, there came an entirely new approach to data handling. There is good reason for believing that a revolution is in the making for the storage, retrieval, and transfer of information, and many are speaking of a "science of information." Through the ages, man's knowledge has been stored in books placed in libraries, and retrieval has been accomplished by reading those books. At some point in the future, the storage and retrieval may be so radically changed that the current library will have disappeared. If the change occurs rapidly enough, it will accommodate the knowledge explosion that is now in process.

To meet some of the urgent demands of this information-handling revolution, the University of Missouri established in 1966 a School of Library and Information Science.

present program

The current educational program of the new School of Library and Information Science is the initial stage of a planned development of considerable importance. In 1967 the School awarded six baccalaureate and one master's degrees, and the present enrollment is 60 in the baccalaureate and 58 in the master's program.

demand

The demand for well-trained librarians has exceeded the supply for a number of years. With the anticipated changes in information handling, there will undoubtedly be an added need for this type of person now in extremely short supply. The size and exact nature of this demand cannot be estimated with precision at present.

supply

The supply of persons well trained in information science is almost non-existent at present. However, students are beginning to be interested in the area of study, and when educational facilities are expanded in accord with library demand, it is certain that the number seeking admission will rise accordingly.

projection

Although a portion of the library demand will continue to be met by baccalaureate graduates, the major development is anticipated to be at the graduate study level. To meet this expected need, the doctoral program will be developed and offered, hopefully by 1972. By 1978 the School expects enrollment in the baccalaureate program to be 100, with an additional 150 in the master's and 15 in the doctoral programs.

At present, the University has but one School of Library and Information Science, and it is located on the Columbia campus. Because of the interdisciplinary nature of information science, this part of the School will continue to be restricted to the Columbia campus. However, because of the local demand in the two urban areas for library science programs, their support by the University on the Kansas City and St. Louis campuses will probably be justified during the next decade.
SOCIAL AND COMMUNITY SERVICES

overview

The increasing population and the concentration of that population into urban conglomerations in a technologically advanced society has made life more difficult for large numbers of citizens, who by accident of birth or economic position are unable to participate fully in an education-oriented culture. With this increasing complexity of social organization and the importance attached to satisfactory adjustment to those complexities, the demand for services of the trained professional has expanded enormously. Professionally trained case-workers, family counsellors, group workers, community organizers, institutional administrators, recreation leaders, facility planners, and community development specialists can contribute much to improved functioning of the social complex. To accommodate this demand the University of Missouri must provide training of exceptional quality and attract applicants with the capabilities to benefit from this instruction.

present program

Enrollment in approved degree programs is currently (1967-68) as follows:

<table>
<thead>
<tr>
<th>Program</th>
<th>Bachelor's</th>
<th>Master's</th>
</tr>
</thead>
<tbody>
<tr>
<td>School of Social Work</td>
<td>66</td>
<td>100</td>
</tr>
<tr>
<td>Recreation &amp; Park Administration</td>
<td>34</td>
<td>10</td>
</tr>
<tr>
<td>Regional &amp; Community Affairs</td>
<td>--</td>
<td>45</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>155</td>
</tr>
</tbody>
</table>

demand

Social Work

The Occupational Outlook Handbook estimates that 15,000 new social workers will be needed nationally each year for the foreseeable future. Other sources, such as Manpower in Social Welfare and Closing the Gap, agree with this estimate. However, in 1967 the 70 schools of social work in the nation produced only slightly more than 4,000 graduates. The number of these baccalaureate graduates now majoring in graduate social work is not known. Reliable, precise demand figures for the State of Missouri do not exist. However, statewide demand for social workers in the health area was recently estimated from a study of one section of the state. The extrapolation demonstrated an annual demand for about 200 baccalaureate graduates and about 90 Master of Social Work graduates. Recent experience suggests that about 65 percent of M.S.W. graduates are in health employment. Using this ratio, a total demand for social work graduates would be in the neighborhood of 300 baccalaureate and 140 M.S.W. graduates per year.

Recreation and Park Administration

Recently enacted legislation making federal grants available to states and cities for open space and park areas has stimulated interest in professional recreation leadership and park administration. In addition, many institutions—such as general and mental hospitals, correctional institutions, and youth-serving agencies—are increasing their demands for recreationally trained staff. The National Recreation and Park Association recently completed a Manpower Supply/Demand Study, which estimated a loss of 54,000 personnel from the field during the next 10 years and a projected addition of 40,250, or a net loss of 13,750. The report anticipates that, if this net loss is added to the projected increase in demand of 235,000, there will be a total deficit of 248,750 trained recreation and park personnel during the next 10 years. Translated into State of Missouri demand, it would appear that if the University of Missouri graduates 100 baccalaureate and 50 advanced degree graduates each year for the next decade, it would satisfy about 25 percent of the state's needs.

Regional and Community Affairs

The demand for professionally trained community development personnel is so large that appears small likelihood it will be met over the
next 10 years. To illustrate the source of the demand, there are being organized throughout the United States more than 600 regional or area planning commissions, and each region has a need for at least one professional community developer. Every state extension service has openings for one or more community resource developers at the state level and numerous positions at area or county levels. The demand for training foreign students under federal sponsorship continues to increase, and a special diploma program has been established for this purpose.

**supply**

**Social Work**

In 1966 St. Louis University, Washington University, and the University of Missouri had 431 students enrolled in graduate social work programs and gave degrees to 173 students. However, only 190 students from the State of Missouri were enrolled in M.S.W. programs in any university in the United States. Thus, the three schools of social work in Missouri are producing five percent of the nation’s graduates in social work, from only two percent of the total population of the United States. The University of Missouri School of Social and Community Services admits each year all of the qualified applicants from Missouri, but this represents only 60 percent of the total admitted. As only about 40 percent of those receiving the M.S.W. from the University of Missouri remain in Missouri after graduation, a considerable drain of trained personnel occurs. To retain an adequate supply in Missouri, it would appear desirable to secure more qualified applicants from the resident population of Missouri. Placement of educational programs in the two metropolitan areas of the state may accomplish this objective.

**Recreation and Park Administration**

Only one other institution of higher education in Missouri offers a baccalaureate area of specialization in recreation. Also, between the Missouri River and California, there are but two institutions with more faculty members in this field than are at the University of Missouri. Each year during the next decade this new department intends to increase its output by 2.5 percent.

**Regional and Community Affairs**

Of the two graduate programs in this discipline in the United States, that of the University of Missouri is the larger, and 14 master’s degrees were awarded at the University in 1968. Based upon current student inquiries and the availability of student support, a steady increase to 50 or 75 master’s degree candidates per year during the next 10 years appears both likely and feasible.

**projection**

Expansion during the next 10 years of the social work and community services educational programs of the University of Missouri appears warranted by the current projected demand and supply relationships. By 1978 it is anticipated there will be enrolled in baccalaureate programs a total of 750 students, in master’s programs 400 students, and 30 graduate students working toward the doctor’s degree. If this expansion is accomplished by a greater interest from qualified Missouri applicants, a sizable contribution will begin to be made toward the social work needs in Missouri.

In projecting for the decade ahead, it is clear that a vigorous program of action research, involving the adaptation of basic knowledge to specific community or social problems, will be necessary to update teaching material and personnel to insure an instructional staff that is in tune with the real problems of communities and their residents in a rapidly changing world.

The University is now supporting one School of Social Work and it is located on the Columbia campus. Because of the large urban populations in Kansas City and St. Louis, program demand may justify the placement of a social work school on one or both urban campuses during the next 10 years.
AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED BY THE COLUMBIA CAMPUS

Accountancy—M.A., M.S., Ph.D.
Agricultural Chemistry—M.S., Ph.D.
Agricultural Economics—M.S., Ph.D.
Agricultural Engineering—M.S., Ph.D.
Agriculture—B.S.
American Civilization—M.A., Ph.D.
Anatomy—M.A., M.S., Ph.D.
Animal Husbandry—M.S., Ph.D.
Anthropology—M.A., Ph.D.
Art—M.A.
Art History and Archaeology—M.A., Ph.D.
Arts and Science—A.B. (See page 34)
Atmospheric Science—M.S., Ph.D.
Biochemistry—M.S., Ph.D.
Botany—M.A., M.S.T., M.S., Ph.D.
Business Administration—B.S., M.B.A., Ph.D.
Chemical Engineering—M.S., Ph.D.
Chemistry—M.A., M.S.T., Ph.D.
Civil Engineering—M.S., Ph.D.
Classical Languages—M.A., M.A.T.
Classics & Classical Archaeology—Ph.D.
Community Development—M.S.
Community Health & Medical Practice—M.S.P.H.
Dairy Husbandry—M.S., Ph.D.
Economics—M.A., M.S.T., Ph.D.
Education—B.S., M.Ed., M.A., Ed.D., Ph.D.
Electrical Engineering—M.S., Ph.D.
Engineering—B.S.
English—M.A., Ph.D.
Entomology—M.S., Ph.D.
Extension Education—M.S.
Field Crops—M.S., Ph.D.
Forestry—B.S., M.S., Ph.D.
Genetics—M.S., Ph.D.
Geography—M.A.
Geology—M.A., M.S.T., Ph.D.
Germanic & Slavic Languages—M.A.
History—M.A., Ph.D.
Home Economics—A.B., B.S., M.A., M.S., Ph.D.
Horticulture—M.S., Ph.D.
Industrial Engineering—M.S.
Inhalation Therapy—B.S.
Journalism—B.J., M.A., Ph.D.

Law—J.D.
Library Science—A.B., M.S.
Linguistics—M.A.
Mathematics—M.A., M.S., M.S.T., Ph.D.
Mechanical & Aerospace Engineering—M.S., Ph.D.
Medical Science—B.M.S.
Medicine—M.D.
Microbiology—M.S., M.A., Ph.D.
Music—B.M., M.A., M.Mus.
Nuclear Engineering—M.S., Ph.D.
Nursing—B.S., M.S.
Nutrition—Ph.D.
Occupational Therapy—B.S.
Pathology—M.A., M.S., Ph.D.
**Pharmacology—M.A., Ph.D.
Philosophy—M.A., Ph.D.
Physical Therapy—B.S.
Physics & Astronomy—M.S., M.S.T., Ph.D.
Physiology—M.A., Ph.D.
Political Science—M.S., M.A., Ph.D.
Poultry Husbandry—M.S., Ph.D.
Psychology—M.S., M.A., Ph.D.
Public Administration—B.S., M.S.
Public Health—M.S.P.H.
Radiologic Technology—B.S.
Recreation & Park Administration—B.S., M.S.
Regional & Community Affairs—M.S.
Romance Languages—M.A., M.A.T., Ph.D.
Sanitary Science—M.S.
Science—B.S.
Social Work—M.S.S.W.
Sociology—M.A., Ph.D.
Soils—M.S., Ph.D.
Speech—M.A., Ph.D.
Statistics—M.A., Ph.D.
**Veterinary Anatomy—M.S., Ph.D.
Veterinary Medicine—D.V.M.
Veterinary Medicine & Surgery—M.S.
**Veterinary Microbiology—M.S., Ph.D.
Veterinary Pathology—M.S.
**Veterinary Physiology—M.S., Ph.D.
Zoology—M.A., M.S.T., Ph.D.

*Ph.D. Area Degrees—College of Agriculture, Schools of Medicine and Veterinary Medicine.
**Ph.D. Area Degrees—Schools of Medicine and Veterinary Medicine.
AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED
BY THE KANSAS CITY CAMPUS

American Culture—B.A.
Art—B.A., M.A.
Art History—B.A.
Biology—B.S., B.A., M.S., M.A.
Business Administration—B.B.A., M.B.A.
Chemistry—B.S., B.A., M.S., M.A., Ph.D.
Dentistry (Anatomy, Biochemistry, Microbiology, Pedodontics, Periodontics, Prosthodontics, Oral Pathology, Oral Surgery)—B.S., D.D.S., M.S.
Dental Hygiene—B.S.
Economics—B.A., M.A.
Education—B.A., M.A., Ed.S., Ph.D.
English Language and Literature—B.A., M.A.
Foreign Languages and Literature—B.A.
General Education (Social Sciences)—Ph.D.
General Engineering—B.S.
Geology and Geography—B.S., B.A.

Health and Physical Education—B.S., B.A.
History—B.A., M.A.
Law—J.D., L.L.M.
Mathematics—B.S., B.A., M.S., M.A., Ph.D.
Medical Technology—B.S.
Pharmacy—B.S., M.S., Ph.D.
Philosophy and Religion—B.A.
Physics—B.S., B.A., M.S.
Political Science—B.A., M.S., M.A.
Psychology—B.A., M.A.
Public Administration—M.P.A.
Psychology—B.A., M.A.
Sociology—B.A., M.A.
Speech and Theatre—B.A., M.A.

AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED
BY THE ROLLA CAMPUS

Aerospace Engineering—B.S., M.S.*
Applied Mathematics—B.S., M.S.
Ceramic Engineering—B.S., M.S., Ph.D.
Chemical Engineering—B.S., M.S., Ph.D.
Chemistry—B.S., M.S., Ph.D.
Civil Engineering—B.S., M.S.,* Ph.D.
Computer Science—B.S., M.S.
Economics—B.A.
Electrical Engineering—B.S., M.S.,* Ph.D.
Energy Conversion—M.S.*
Engineering Administration—M.S.*
Engineering Management—B.S.
Engineering Mechanics—B.S., M.S.*
Engineering Physics—Ph.D.
English—B.A.

Geological Engineering—B.S., M.S., Ph.D.
Geology—B.S., M.S., Ph.D.
Geophysical Engineering—M.S., Ph.D.
Geophysics—B.S., M.S., Ph.D.
History—B.A.
Mathematics—M.S.T., Ph.D.
Mechanical Engineering—B.S., M.S.,* Ph.D.
Metallurgical Engineering—B.S., M.S.,* Ph.D.
Mining Engineering—B.S., M.S., Ph.D.
Nuclear Engineering—B.S., M.S., Ph.D.
Petroleum Engineering—B.S., M.S., Ph.D.
Physical Sciences—M.S.T.
Physics—B.S., M.S., Ph.D.
Propulsion and Space Engineering—M.S.*
Psychology—B.A.

*Also offered at the St. Louis Graduate Engineering Center.

AREAS IN WHICH BACCALAUREATE AND GRADUATE DEGREES ARE OFFERED
BY THE ST. LOUIS CAMPUS

Administration of Justice—B.S.
Biology—B.A.
Business Administration—B.S., M.B.A.
Chemistry—B.A., B.S.
Economics—B.A., M.A.
Education—B.S.Ed., M.Ed.
English—B.A.
French—B.A.
German—B.A.

History—B.A., M.A.
Mathematics—B.A.
Music—B.A.
Philosophy—B.A.
Physics—B.A., B.S.
Political Science—B.A., M.A.
Psychology—B.A.
Sociology—B.A., M.A.
Spanish—B.A.
APPENDIX C

Preface to Decision

University of Missouri

September, 1971
UNIVERSITY OF MISSOURI

"Preface to Decision"

September, 1971
UNIVERSITY OF MISSOURI

"Preface to Decision"

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September, 1971
FOREWORD

During the past two decades universities have been faced with unprecedented demands resulting from greatly increased numbers of students and from growth in knowledge and technology. In some ways the universities have met these challenges well; in other respects we have faltered. As a result of our falterings and a number of external factors beyond our control, an enormous literature about the real and assumed crises now gripping higher education has accumulated. All of this writing mandates our University to reappraise its unique nature and expectation.

Accordingly, in early January, 1971, I invited the Chancellors, the Deans of Faculties, campus faculty leaders and my academic staff officers to join me in initiating a project of institutional reappraisal. We sought to re-examine the University in four important areas: (1) Mission (2) Program (3) Resources and (4) Organization and Governance. We obviously did not, and could not, cover all of the University's concerns.

Questions were prepared under the general theme, "Preface to Decision," and were distributed to many groups on our four campuses inviting them to discuss major principles and issues affecting the University of Missouri's future.

The pages which follow are a summation of the responses from students, faculty, and administrative groups across the University. In distilling the various replies to the many questions posed, the group which joined me in initiating this project has tried to incorporate or faithfully reflect the major ideas which the replies contain.

The resultant summary is, of course, only a crucial beginning toward better self-appraisal. This document is not a plan of action. Our intention has been to clarify our concerns, identify some new goals, and discover more about the strengths and weaknesses of our values. The academic year 1971-72 must be a time of decision about many of the issues raised in "Preface to Decision." In distributing this document to the University community, I hope its contents will prove a continuing source of ideas and encouragement for all of us as we attempt to resolve the difficult problems before us.

C. B. RATCHFORD
President

September, 1971
I. MISSION OF THE UNIVERSITY

Established as the first public university west of the Mississippi, the University of Missouri has long served both State and nation as an organized, educational response to individual and societal needs. Since 1839, the University has been identified as a center for the generation and transmission of understanding and the application of knowledge to problems of concern to individuals and society. Through the years it has furthered the aspirations of individuals, whether these aspirations related to career goals or to unique needs for personal fulfillment. In the land grant tradition, the institution has fostered programs serving individuals from a broad range of economic and social backgrounds and has brought knowledge and expertise to support the State's political, economic, and social development.

Two basic goals—enhancing human potential and focusing attention on the legitimate concerns of society—encompass the continuing mission of the University of Missouri. If the University is to meet realistically and effectively the challenges of its two basic goals, it cannot afford to dissipate its resources or vitiate its primary educational roles. It must not respond to current whims or fads, nor must it become politically aligned.
Two opportunities, therefore, confront the University. One is to be a member of a team which serves the total educational needs of the State of Missouri (public schools, community colleges, public four-year institutions, private schools and colleges, and the State University). The second is to be the educational capstone of Missouri's system of public education. This second opportunity is unique and demands much leadership. The uniqueness of the University is manifold and includes, for example, many professional programs, such as medicine, law, education, engineering, and others; research supporting doctoral degrees; applications of knowledge; and continuing educational programs. The success attained by the University in its role as educational capstone will be measured by the degree of quality it maintains.

While the University's mission includes local and state needs, the outreach of the University often must extend beyond state boundaries. There is an obligation even to support international programs where the University's resources and expertise can be used to proper advantage. In all of this, it must be recognized that available resources limit the scope of the University's programs and the number of individuals it serves. Thus, only within a context of available resources can goals of the University be realistically developed. Selected areas for emphasis and excellence must be achieved on each campus. However, resource restrictions will not permit the development of other programs beyond an
acceptable level. Each campus should be urged to emphasize those programs especially consistent with its capacity and setting.

A true university serves as the conscience of society. As such, it should attune its traditional goals to an active awareness of the problems and values of the times. The University of Missouri, therefore, should be sufficiently flexible in its philosophy and pliable in its organizational structure so that it may appropriately respond to the developing educational, research, and public service needs of society. At the same time it must give enlightened leadership for constructive change. This will require the regular evaluation of each program to assure its effective response to changing intellectual, cultural, economic, and societal needs. Also, program experimentation must be encouraged if the University is to fulfill its mission. Its place in Missouri's public educational system requires the University to develop new practices in promoting and applying learning. To this end, appropriate incentives for faculty members, departments, schools, and campuses must be provided. Rewards must encourage innovative efforts. Just as a competent scientist requires a properly equipped laboratory for scientific inquiry, so must resources be made available for attempts to improve student learning. A dynamic educational
program requires continuous development and refinement. Such efforts are all a part of a noteworthy university's mission.

Students enrolled in the University should be capable and well motivated. Neither economic nor social status should adversely affect the admission of academically qualified persons to appropriate programs. Academically qualified students who enter the University are those whose high school class standing and test scores indicate a reasonable chance of scholastic success. Qualified students who transfer after one or two years of successful experience from community colleges should constitute a growing source of students for the University.

The University cannot and should not serve in loco parentis with respect to the personal and private lives of its students. It should, however, dedicate its efforts to extra-classroom enrichment of student life on the campus through a variety of informal and extra-class educational, cultural, and societal opportunities which are compatible with the University's more formalized curricular programs.

The University must accept corporate and civic responsibility and maintain a leadership role within the
state's communities wherein its campuses are located. It must be ever alert to a campus' immediate impact on neighboring residential and business areas and the demographic changes surrounding it. The University must also be aware of its effect upon the students and the society of which it is an integral part. This awareness should always be translated into policies which make the University a good neighbor and a good corporate citizen. The leadership of the University should be an example of the place its higher educational efforts have earned in democracy.

The University should periodically review its mission and its success in attaining that mission by evaluating its programs and its effective utilization of resources. A regular review of its mission will serve three useful purposes: (1) to maintain individual and collective awareness of the University's objectives, (2) to assess practices and programs in terms of stated goals, (3) to secure evaluation of the appropriateness of stated goals as new societal needs emerge. The group responsible for making the periodic review should customarily include individuals from beyond the University.
II. PROGRAM

The programs of the University must be related to mission. This means that its programs must be directed toward fulfilling the tripartite purpose of teaching, research, and service with particular emphasis being placed upon teaching.

In order to fulfill its mission, the University should offer the full spectrum of degrees found in any major university. In addition, careful thought should be given to both the offering of appropriate new degrees and to new ways of earning established degrees. It would be desirable to provide individuals with easy entrance to and exit from elements of the total educational program without departing from the principle of confining degree offerings to the baccalaureate level and above. Specifically, the University should not undertake to offer the AA degree, and it should not engage in technical education except in relation to its programs of professional education.

Most students expect an evaluation (grade) for the work they complete and credit hours for courses taken. These are the traditional measures of progress toward a degree. Formal records of this type are, therefore, generally
expected by students, parents, accrediting agencies and the supporting public. Within this format, however, a rather high degree of flexibility and experimentation in course work is possible and should be encouraged. New designs in education include pass-fail grading, internship, honors, freshman seminars, independent study, work-study, program-oriented courses and flexible degree requirements that recognize the needs of individualized learning. All of these could enhance the exploratory quality and immediacy of the educational experience.

The University should recognize that any route leading to competence should be acceptable. Competence should be defined not as the successful completion of any specific number of credits, but as achievement by numerous routes of a given level of knowledge, understanding and acquired abilities. Values derived from the interaction of students and teachers must not be lost. We should not forget that students can contribute to the design of innovative instructional processes. The goal to be maintained remains the development of an educated person, capable of critical thinking and possessing important life values. The University should expand its program of offering credit by examination. With whatever alternate routes to educational competence are developed,
however, there should be a continuing recognition of the fact that a good University education is more than passing examinations or achieving a measured level of confidence. A good University education is a process to be experienced.

It is important to remember that innovation should be significant, rather than for the sake of change. While new routes to educational competence should be explored, they should not be permitted to weaken the quality of existing programs.

In developing its programs, the University should seek in every way to enhance the benefits deriving from its nature as a multi-campus institution. There should be opportunities for student movement from one campus to another. The University should develop collaborative programs wherever possible, but individual strengths of the campuses, including appropriate program diversity within each, should be preserved and encouraged. Collaboration should not result in homogenization nor should it be forced.
Within its obligation to offer instruction leading to professional and graduate degrees, the University must now give special attention to preparing persons for roles in higher education. There must and should be great improvement in the training of college and university teachers. While the Ph.D. degree will likely persist as the principal requirement for university-level teaching, the structure and requisites of this degree should be re-examined with the goal of better preparing candidates for teaching in institutions of higher learning. The Doctor of Arts degree should be considered as a possibly dignified and useful counterpart to the Ph.D. Certainly all doctoral programs could better utilize instruction in education, internship in teaching, and other experiences that emphasize teacher preparation. The University must especially make more effective educational use of the graduate teaching assistantship.

The recognition of good teaching is an obligation of the entire academic community--students, faculty, and administration. The University should continue to develop its techniques for the furtherance, recognition and reward of outstanding performance in teaching as well as in research and public service. Because of the tradition that has
resulted in easy recognition of achievement in research at the possible expense of achievement in teaching and public service, special attention should be given to the latter elements. The University should not be deterred by the difficulty in recognizing good teaching. It can be done. The several sources of evaluations include students, peers, administrators, alumni, and the teacher himself.

In addition to developing appropriate programs of good quality, the University must improve the interpretation of these programs to internal constituencies and to the public at large. One of the strengths of American higher education is the fact that while the missions of our institutions have been defined in collaboration with public bodies--through such instruments as the Morrill Act, for example--the development of programs to implement the mission has been left generally to the institutions themselves. If the University is to retain this privilege, it must be able to interpret its programs effectively. Much greater attention should be given to this effort.
III. RESOURCES

In discussing the University's resources, six general types need to be considered. These six categories are students, faculty, physical facilities and locations, fiscal support, academic programs, and support and service personnel.

Resource allocation must be examined in relation to mission, both of the total University and of the individual campuses. Also, resource allocation must be determined by the President with the counsel of the four Chancellors. The Chancellors should then have the authority to allocate within their campus budgets according to the campus mission and with the counsel of their academic administrators.

Students

Because of better secondary school preparation, and, in some cases, higher admission standards, the quality of the University's student body has been improving. The presence of graduate students should be regarded as a strength and a resource. This latter resource should be better utilized by emphasizing stronger preparation for
the teaching contribution of graduate students.

Faculty

The faculty of the University of Missouri possesses elements of strength. However, better use could be made of some faculty resources. Also, renewed efforts should be made to attract outstanding faculty members. There is general agreement that most faculty members should be assigned a blend of responsibilities drawn from the areas of teaching, research, and service. Grouping faculty within these functions is considered undesirable.

Part-time faculty members must be regarded as a good resource. This group can bring diversity to the faculty and complement the experience of the full-time staff, provided such persons have adequate physical facilities and status. The present inadequacies are weaknesses which must be removed if part-time faculty are to develop a closer institutional relationship and commitment. Arrangements should enable these faculty members to be more available to their students. Beginning part-time faculty need a period in which to become oriented to the academic setting and to acquire more pedagogical training. Team teaching with a full-time faculty member could be used to
accomplish these latter goals.

**Physical Facilities and Locations**

The varied locations of the four campuses constitute a great advantage. These locations should significantly affect the assignment of role and scope to the respective campuses. It is recognized that University-wide operational units may be justifiably established on a campus provided that significant service can be rendered to all the campuses.

**Fiscal Support**

It was widely felt that the University's fiscal support should continue to come largely from the State. However, the institution must continue to seek federal support in various forms while exploring improved methods of allocating grant overhead funds. The Alumni Directors should be deemed an asset for fund raising as well as for building good will toward the University. Consequently, the University community believes that fees should remain as low as possible consistent with the requirements of good quality programs. The latter will presumably force educational costs to rise. In the area of continuing education, steps should be taken to assure that those
involved have a better understanding of the cost basis of their programs. Such efforts would alleviate present misunderstandings regarding fee charges for these programs. Generally greater effort should be made to acquaint students with the real cost of their education.

A number of areas can be identified on all of the campuses where more resources are needed. An example is the requirement on the urban campuses for what has been described as catch up or development funds. More support personnel are widely needed on the campuses.

**Academic Programs**

All campuses of the University can claim some high quality programs. The academic opportunities for undergraduates are found to be good on all four campuses. However, these are always in need of improvement.

The Ph. D. programs, on the other hand, are generally regarded as an area of weakness.

The caliber of the extension program is viewed as strong. This may be due to efforts at integrating extension service with the other academic functions of the University.
Some professional schools were regarded as having strong programs.

There is an overwhelming opinion in the University that a review mechanism for academic programs needs to be initiated. Many persons believe external opinion should govern the reviews. The latter would proceed in much the same way as reviews conducted when new graduate programs are initiated. Among the considerations should be the quality of undergraduate instruction, productivity of graduate degrees over a specified period, and cost factors, especially among programs in similar areas. The results of such reviews would be helpful in determining the initiation and continuation of academic programs.

In formulating its priorities and allocating its resources, the University should consider a number of factors. First, programs must be measured against the mission of the University and the individual campus missions. Conflicting views on the appropriateness of a new program or office to a campus mission would be resolved by the President. Existing resources among faculty, facilities, and services which would be utilized by proposed new programs must be considered. The continuing
requirements of the program for resources should be weighed. The program must be examined for its pedagogical and social contributions.

**Support and Service**

The University has inadequate support personnel on the campuses. Also, it is felt that too much bureaucracy exists, most of it concentrated at the University-wide level. A review process for administration, similar to the one involving academic programs, would be in order. It should use the insights of educational management consultants.

There is wide-spread feeling that we are not taking maximum advantage of public relations. Greater efforts should be made to point out the capacity of the University both internally and externally. Recent efforts by the Board and University presidents in this area are welcomed and should be expanded. Internal communications need to be developed so that all University personnel are aware of areas of strength, of special facilities, and of accomplishments by faculty and administration.
IV. ORGANIZATION AND GOVERNANCE

The President is the chief academic and administrative officer of the University. He is appointed by, receives authority from, and reports to, the Board of Curators. The Chancellors are the chief academic and administrative officers of their respective campuses and are directly responsible to, and receive authority from, the President. The President, his four Chancellors, and his academic vice presidents should constitute an Academic Planning Council which should serve as the chief academic conscience of the University.

The governance of this University obviously should be carried out in a way consistent with the accomplishment of mission. Desirable characteristics of this governance include appropriate decentralization of authority; clear definitions of the roles of the administrators, staff, faculty, and students; communication of the decision-making process to all affected persons; and well-defined mechanisms for accountability at each level of authority.

To enhance decentralization, the President, with the advice of his academic staff and the Chancellors, should set broad policies and allocate resources to campuses. Each
campus should then be called upon to implement the goals of that campus that have been agreed upon by the President and the Board. The relationship of Chancellors to deans and deans to department chairmen should be comparable to the relationship described above. Within these basic guidelines, several other points should be emphasized. Once goals are agreed upon and authority delegated, the role of the administrator should be primarily to coordinate the various units under him and to become involved in their operation only when cooperative effort between units is needed. However, the leadership role of the administrator should be recognized and emphasized on all levels. The latter is necessary to insure that there are opportunities to evaluate existing programs, consider new programs, and experiment with new approaches to learning and teaching.

The role of the Academic Planning Council is perceived to be an extremely important one. As members of the Academic Planning Council, the Chancellors should not only represent the needs and interests of their respective campuses, but should address themselves as well to the total needs and best interests of the University as a whole. Guided by the broad goals and policies set by the Academic Planning Council, each campus should have the authority to establish its specific goals within
the resources available for carrying them out.

Such direct assistance as the President and the four Chancellors may require in performing their University obligations should be obtained from a minimum number of vice presidents serving as staff to the President. In relation to the campuses, the vice presidents should have only staff functions, as designated by the President. However, where certain University-wide research operations and University-wide extension operations, or similar University-wide service activities are necessary, the person in charge shall have such appropriate line authority as is designated to him by the President, by the Board of Curators, or by statute.

In addition to the staff functions and specifically designated line functions provided above for the vice presidents, the vice presidents, at the request of the President, should serve in an advisory capacity to the President. Only the President's academic staff should advise on academic matters. It is recommended that more time be spent on the campuses by University-wide personnel and that the primary roles of University-wide administrators should be coordinative and facilitative, rather than directive or restrictive. Communications between the
offices of the vice presidents and campus representatives designated by the Chancellors should be issued by vice presidents, and not by staff members of their offices.

A key problem within University governance is that of communication of the process and the decision. All members of the University community should have access to information concerning the origin of various types of decisions. Line relationships should be carefully evaluated throughout all administrative levels. Communications through these channels should flow quickly to and from various administrative levels so that decisions are clear, their bases understood, and their implications are known to all constituencies. Recent moves by the Board of Curators to permit more student and faculty communication with the Board are commended.

The President, in preparing the University budgets, should seek advice from the Academic Planning Council concerning proposed campus budgets, but he should make all decisions regarding campus budgets only after reviewing the recommendations of his vice presidents with the respective Chancellors.
Regarding administrative roles and relationships within the University, the existing roles and relationships of the various campus officers have never been articulated. It is essential that position functions be more clearly defined and that role relationships be published widely, including organizational charts showing interpositional relationships.

Along with such role definition should come a greater concern for making administrators, from the department chairmen to the President, more responsible for the direction of their programs and more accountable for their results.

Once the roles of the Chancellors and vice presidents have been clarified, each campus will be able to devise an organizational structure that best fits its mission and needs.

Considerable thought has been given to the appropriate allocation of responsibility and authority between members of the faculty and members of the administrative staff. The faculty should be a source of advice in most aspects of University governance. The faculty has prime authority in such selected areas as academic regulations,
admission and retention standards, degree programs, curriculum and course content, course credit, and the granting of degrees. Because the faculty member is at the prime interface of the learning process, he must have a major role in the governance of the University in order to protect the integrity and efficacy of the learning process as well as the conditions which promote faculty well-being, development, and effectiveness. By providing an advisory input from faculty in areas of governance not apparently directly related to academic matters, the University may protect these latter conditions. It assuredly would thus enhance and promote the fulfillment of the University's mission through an enlarged element of concerned interest and expertise in the management of the University.

The administrative staff should provide strong educational leadership by assisting the faculty in promoting learning, research, and public service; by coordinating and overseeing such operational matters which make the learning processes possible and by coordinating interdependent factors and total operations of departments and divisions so that the University is more than a set of isolated and independent units.
While the service and support staff should not be responsible for academic decisions, they may well have expertise useful in the making of such decisions. They should have input into decisions that directly affect them.

A great deal of attention is currently being given on many university campuses to enhancing the role of departments within the university and particularly to the role of department chairmen. The department is, after all, the basic organizational, programmatic, and budgetary unit which coordinates the work of a specialized faculty in a specialized area of learning. Special concern arises over balancing the administrative responsibilities and academic functions of a department chairman. Departmental administrative burdens have increased as faculties have grown larger, as curricular offerings have multiplied, and with the development of a multi-campus University. It is obvious that administrative support and rewards to department chairmen have not been commensurate with their additional responsibilities. Little has been done to encourage identification of departmental chairmen as members of the campus administration.

Students, as the predominant constituency of the academic community and the prime consumers of University
effort, should have the opportunity to voice opinions in all matters which affect their lives and the learning processes in which they are involved. Because students are not accountable in the same way as are faculty and administrators, their roles in University governance should be in an advisory capacity, including service on committees where they have an appropriate competency to contribute. The University should be receptive to expressions of students' concerns and to their interest in having a voice in University affairs.

There is general agreement within the University that the missions of the University are most likely to be achieved by a judicious blend of formal and informal authorities. Decisions should be made at that level where effective interactions may occur between the administration and faculty. This requires, at the very least, the faith of higher administrators in their subordinates and the faith of the faculty in their administrative representatives.

Within the present perception of the University of Missouri, the committee system is seen to play a significant role, not only in University governance but in the development and furtherance of educational activities. There is
a strong feeling that if the Chancellors are permitted significant autonomy for the conduct of activities on their campuses, along with participation in the Academic Planning Council, only a modest University-wide committee system would be necessary.

Some University-wide committees have special purposes and perform useful functions, e.g., the University-wide Inter-campus Faculty Council, the University-wide Staff Benefits Committee, and certain University-wide committees which coordinate University-wide research resources (e.g., the nuclear reactor) or research concerns (e.g., radiation safety).

Some University-wide coordination and communication can be accomplished without formal committee structure, but rather through informal meetings of such campus counterparts as library directors, graduate deans, or deans of faculties. Such individuals could meet periodically with appropriate members of the Presidential staff.

It should be clear that committees at all levels assist decision-making processes, bringing together many different viewpoints, collecting and considering a variety
of data, weighing alternatives, and making recommendations. However, for effective operation, each committee should receive a specific charge describing its purposes, its particular area of concern, as well as its responsibilities and authority. This should discourage misunderstanding of intended functions and should coordinate the committee activity with other University activities. Once committee recommendations have been made, such recommendations should receive prompt administrative consideration. Committees should receive early responses regarding the disposition of their recommendations.

The University of Missouri is keenly aware of the need for a continuous program evaluating the progress of faculty and staff, including members of the administration. Evaluation systems are now in operation on all campuses, and are being carefully studied for further improvement. Sufficient organizational framework must exist within the University to assure a reasonable consistency among the campuses with regard to standards for the evaluation and progress of both academic and non-academic University members.

Among institutions of higher education throughout the nation, more group or interdisciplinary approaches are
being encouraged for the training of both teaching and research specialists concerned with problems of our society. Interdisciplinary studies now exist on all of Missouri's four campuses. Such programs can expect significant development in the coming years. The University's campuses are generally favorable to the formulation and expedition of viable mission-oriented and/or interdisciplinary programs at the campus level. However, the desirability and practicability of intercampus programs of this type is yet to be determined.

Because of the importance of interdisciplinary programs, guidelines for their development should be clear. The establishment of such programs should require their being based on real interests and needs, and such programs should be dissolved when the need no longer exists. Therefore, it is basic to the success of interdisciplinary programs that there be strong departmental interest, individual initiative, general good will among participants, and full and candid communication among all those involved.

Proponents for the creation of academic and administrative structures that bridge two or more divisions
indicate that the informal faculty-to-faculty or department-to-department relationships often leave participants in an interdisciplinary program in academic and administrative limbo. This is often the result of the conflict between the faculty member's broad interests and the more narrow professional interests of his colleagues in the department. Academic rewards have more often been given to the easily identifiable specialists than to the faculty member with widely dispersed interests straddling departmental lines. Participants in interdisciplinary programs must have an academic "home," i.e., they should hold an appointment in an academic department or division. Any formalized structure to bridge departments or divisions should be jointly coordinated between departments and divisions concerned.

In universities which are neither new nor prestigious, the suitability of departments for implementing interdisciplinary programs is being increasingly questioned. However, on many campuses, few models for interdisciplinary programs other than the department model have evolved. In cases where interdisciplinary programs appear to be highly desirable, the departmental model may not suffice. Thus, strong administrative initiative is sometimes called for, since inter-departmental involvement cannot always build
on customary disciplinary ratification. Departments should seek more flexibility in accommodating approaches to new areas, such as toward the environmental or social concerns of our society. If not, new models for coordination of disciplinary expertise are likely to emerge.

It is generally agreed that centers as organizational elements in academic activities should not grant credit or degrees. All credit and degree-granting activities should be under the purview of the faculties of the respective departmental and divisional organizational units.

In a system of governance characterized by delegation of authority and participation of many individuals and groups, accountability is an absolutely necessary component. Once policy decisions have been made, and appropriate authority and responsibility have been assigned to each staff and line position, every participant in University governance should be held accountable for contributing to the implementation of policy. Those who participate in the governance process should be evaluated for excellence of performance. Since accountability is a two-directional concept, evaluation should be accomplished both by those whom one serves and those by whom he is served. Periodic evaluation from outside the University
is also advisable. It follows that if evaluation is a two-directional process, there should be two-directional input into the selection of persons to whom authority will be delegated. If, after adequate opportunity, someone in the governance structure of the University is not satisfactorily fulfilling his responsibilities, he must be replaced. When decision-making powers are delegated to students or faculty, the same principles of accountability must hold.
A REPORT TO THE PRESIDENT--1971

by the

UNDERGRADUATE COUNCIL OF THE
UNIVERSITY OF MISSOURI
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I. Summary:

This report of the University-wide Undergraduate Council to the Interim President, C. Brice Ratchford, is in response to concerns expressed in a letter to the Council of January 13, 1971. The Council saw these concerns as a reflection of the fiscal and educational trust given the University of Missouri by the public it seeks to serve.

The Council saw the concerns of the Interim President as a five-fold charge:

A) A critical assessment of the areas of strength and weakness of the University that apply directly to undergraduate experience of the first two years.

B) The Curricula.

C) Methods of Instruction.

D) The attitude of the University Community toward the student.

E) Is the first two year period in the university a quantum of experience that needs special attention or its own degree?

In the second section the Council has addressed each of the areas listed above in detail. The Council felt it necessary to express in full its understanding of the issues raised by the concerns listed in the charge. Having explained the viewpoint of the Council relative to the charge, the thinking behind the several recommendations, made in the third section, should be more meaningful.

The third section of the report deals with the specific recommendations of the Council to each of the areas of the charge. These recommendations are made with full appreciation of the accountability required of the University by its public. The same format of accountability would be an important prerogative available to those with the
trusting the distribution of funds to those schools and colleges budgeting and setting priorities for the teaching of undergraduates.

The fourth section of our report is an appeal for a frank reappraisal of the educational mission and its relationship to the public to whom we are committed to serve. It may well be that our basic role as the principal higher educational steward of the State of Missouri must be formed and articulated in a fashion that reflects our total commitment as individuals, in the faculties of the schools and colleges, to the teaching of the young men and women. In some cases this will be the shift from career to mission orientation in the hopes and ambitions of our faculties.

II. The Charge to the Undergraduate Council:

A. A critical assessment of the areas of strength and weakness of the University that apply directly to the undergraduate experience of the first two years.

Some of the strengths and weaknesses identified in this section, and some of the recommendations to exploit these strengths and reduce the weaknesses will be treated in greater detail under some of the other headings of Sections II and III.

I. Strengths:

a. The physical location of the four campuses is most fortunate both from the standpoint of serving the needs of students and from the point of view of exploiting existing teaching and research resources within the state.

b. The University contains a large collection of first-rate scholars in a very wide variety of disciplines. There are very few scholarly specialties that are not available to the student somewhere within the system.

c. For many students, and particularly for the more gifted students, the best undergraduate education takes place in the context of creative, research, and educational activities that cover a broad spectrum of areas. The sheer size of the University of Missouri (9th largest in the nation) provides the opportunity for a broad and stimulating educational environment.
d. There are important traditions of scholarly merit in a considerable number of schools, departments, and areas of study.

e. The combined effects of b, c, and d, above, virtually assures the student that his degree, when he earns it, will carry greater prestige than a degree earned at a State College.

f. The large and excellent extension and continuing education programs in the system tend to keep the University in contact with the people of the state and tend to endow all of the instructional programs with a relevance they might not otherwise possess.

2. Weaknesses:

a. Some of the goals of a large, prestigious University are not entirely compatible with lower-division excellence in instruction. For example, the excellence in research that may yield national visibility of the institution and enhance the prestige of the student's degree may also deprive that student from association with the research scholar during the underclass years of study.

b. The first-rate scholars mentioned in I, b, above, are mal-distributed within the system as far as the freshmen and sophomores are concerned. Too few senior faculty members are teaching lower division courses.

c. The sheer size of the University mentioned in I, c, above, leads to weaknesses is that a very large institution is apt to appear cold and impersonal to the lower division student.

d. Still a second weakness of the large university is that it fosters a high degree of specialization in its faculty and, through the faculty, in its curricula.

e. The student/faculty ratio is not as favorable as it should be.

f. Too many graduate-student Teaching Assistants are given primary responsibility for teaching underclass courses. Furthermore, these Teaching Assistants frequently are not the most advanced or able graduate students (these having been given fellowships or Research Assistantships). Moreover, many of the Teaching Assistants have had little or no training in the business of college teaching.

g. Mechanical difficulties too frequently disrupt the education of freshmen and sophomores. Often courses are closed out early in the registration period to the frustration of students not fortunate enough
to be first in line. More often than not, freshman and sophomore advising is not as effective or as personalized as it might be.

h. There is not recurring budgetary commitment to the establishment of remedial education (whether a transitional year program, upward-bound program, Project UNITED, or a system for giving remedial training off the campus) in the University.

i. Finally, underlying many of the weaknesses outlined above, there is the ever-present shortage of space, money, and personnel.

B. The Curricula—Questions and Issues Considered

The emphasis of all discussions was on the first two years of the undergraduate experience. These discussions included a review of typical programs from each of the four campuses. The form of these program reviews differed slightly on each campus, some listing current general requirements, and some including opinions obtained from student interviews (both formal and informal) regarding the first two years' experience.

As a result of these reviews and discussions a number of specific issues were raised. In general these issues reflect the concerns of all four campuses rather than a local concern of one particular campus. They are:

(1) Rigidity of present curricula.

(2) Relevance of required courses and prerequisites.

(3) Motives for requiring courses.

(4) Design of introductory courses.

(5) Curriculum review procedures.

(6) Transfer of courses between campuses.

(7) Ongoing evaluation of recent graduates

A digest of the committee's discussions relative to each of these issues follows:
Rigidity of present curricula.--It was noted that, as presently constituted, the first two years contain a preponderance of required courses. This is not necessarily undesirable since a majority of these are basic knowledge and skill courses in English, Modern Languages, History, Mathematics, and the Physical or Social Sciences. This large number of "must" courses was felt to convey a feeling of rigidity and sameness to the student. It was noted, however, that there is a recently emerging tendency throughout the University to allow more flexibility in programs during the first two years.

Relevance of required courses and prerequisites.--It was felt that required courses are sometimes unnecessarily dull and repetitive. The typical required course is concerned with imparting basic skills and knowledge which are usually needed for further study in a particular discipline. As such, its content tends to remain fixed over a period of time and may, or may not, reflect the current issues and thinking in a particular academic discipline.

Motives for requiring courses.--Although student needs are considered when making a particular course required, there are times when tradition or faculty loading are the deciding factors. Several instances were cited where a particular course was made required in order to provide a built in student load for a particular department. This act of requirement may be felt necessary because a department is new and has a low number of majors enrolled or because it is felt that removal of the requirement will result in a drastic loss of enrollment. It was noted that making a previously required course an elective does not necessarily result in declining enrollments.
Design of introductory courses. --Introductory courses for "non-specialists" tend either to be historical surveys or prerequisite to more advanced courses in specific areas of study. By and large elective courses available to freshmen and sophomores fall into this introductory category. Since they are lower division courses, the general tendency is to include well established topics which are considered basic to specialists in that particular field rather than problems of current interest. On each campus exceptions to this general tendency can be cited. These exceptions tend to be well received by the students.

Curriculum review procedures. --The curriculum review is largely dormant. Although the actual curriculum review process varies somewhat between campuses, the various committees act largely as approving agencies for individual courses. Only in rare instances are curricula considered as a unit. There seems to be no motivation for purposive review of overall programs.

Transfer of courses between campuses. --There is apparently no general agreement (in practice) as to the transferrability and equivalence of courses. While campuses will usually accept work done at other campuses for general credit, there is sometimes a question as to whether transferred credits will satisfy specific requirements.

Ongoing evaluation of recent graduates. --There seems to be no uniform effort to determine the activities of recent graduates and the relevance of their education. There is more activity in this area by the professional disciplines than by the University in general.
C. Methods of Instruction—Problems

In looking at the methods of instruction currently being used at the University of Missouri in the teaching of freshman and sophomore students, the problems that persist seem to result from the necessity of accommodating large numbers of students. In order to make this accommodation, it has been necessary to resort to some teaching techniques and methods which have compromised the quality of instruction at these levels. The following will serve as examples:

1. The use of the large lecture for classes numbering from 300 to 700.
2. The use of television.
3. Using graduate students to teach the lab sections or discussion of the large lecture class.
4. Where the small class of some 25 to 50 students is used in the introductory courses, primary and, many times, exclusive responsibility for the staffing of these courses rests with graduate students.

There presently seems to be little or no encouragement by way of financial or professional incentive to have the experienced, established, and more talented faculty members teach these courses. Also, there seems to be little or no incentive for younger but talented faculty members to assume the responsibility for the teaching of these introductory courses and develop an expertise over a period of 10 to 12 years. It is common for the new members of the department to teach these courses for two or three years and then pass on the responsibility to others while they concentrate their efforts on the upper level undergraduate and graduate courses.

Most departments do not exercise sufficient care in the selection of graduate students who will assume teaching assistant responsibilities with the result that incompetent persons are placed in the classroom. Further, most departments do not provide
adequate training to the teaching assistants so that they can do a better job in the classroom.

While there are examples of very fine teaching taking place at the freshmen and sophomore levels at the University of Missouri, there generally prevails a feeling that much needs to be done to improve teaching at these levels. The lack of quality education at these lower levels has existed and will continue to exist as long as we continue two practices which have been followed in the past:

1. We arrange or structure freshmen and sophomore level courses so as to maximize the opportunity to provide graduate student aid rather than to structure courses in order to maximize quality of instruction. (For example, laboratory sections are used in courses when possibly laboratory sections really aren't necessary.)

2. We tend to use the freshmen and sophomore level courses to economize on staff and money to the detriment of the quality of education at those levels.

D. Attitude Toward the Student: Problems

While the University of Missouri does not consider or intend to treat freshman and sophomore students as "second class citizens" of the University community, there seems to be a feeling among that group of students that there is such an attitude prevailing toward them. It is a feeling of insignificance and impersonality produced, no doubt, by the large number of students and the large classes at these levels. There is some basis in fact for this feeling. If the members of the faculty and administration analyze the situation carefully, there are instances prevailing in which freshmen and sophomore students are being "used" to attain certain goals. This relates in particular to some of the matter discussed under II C relating to
Methods of Instruction. We do tend to economize in the introductory level courses in order to enhance our graduate program. We do tend to so structure our courses at the introductory level so as to make available assistance for graduate students and thus enlarge our graduate programs. We do tend to use the new inexperienced teachers at the introductory level courses saving the experienced and seasoned teachers for the upper level and graduate courses.

E. Special Consideration for First Two Years

In general the council showed little enthusiasm for the Associate of Arts degree as such. The council did, however, support the awarding of Associate of Arts or a similar degree where a program is uniquely associated with a university program and environment. Paraprofessional training, Medical and Dental Technicians are examples of this type of program. It was felt that this kind of program can be operated properly only if it is associated with a professional program of the University.

The council expressed considerable concern that the University does not provide an advocate specifically for freshmen and sophomore students. It was pointed out that the Graduate Dean acts as a special advocate for graduate students but that Undergraduate Deans tend to act only as advocates for upperclassmen who are associated with their particular college. It was pointed out that the college dean could, in fact, fulfill the role of lower division advocate. However, whether he does or does not appears to be a matter of individual rather than corporate interest.
III. Recommendations:

A. Strengths and Weaknesses

Again, be it noted that many of the recommendations outlined below will be treated in greater detail under some of the other headings.

It is recommended that the University:

1. Assign a greater number of senior faculty members to give instruction in freshmen and sophomore courses.

2. Reduce the number of lower division courses taught by graduate-student Teaching Assistants, and to select the remaining Assistants more carefully than Assistants are now selected and to give them specific training in their teaching duties.

3. Evolve various devices for giving human warmth to teaching situations personal attention to the student— even in large-class situations, as by instituting special events, systems of personal recognition, and the use of small discussion groups, student panels, etc.

4. Establish a system for rewarding good teaching at all levels.

5. Improve the student/faculty ratio.

6. Examine the curriculum to provide as much relevance and flexibility as possible.

7. Remove as many of the mechanical frustrations of the first two years as possible by having more and better-trained faculty advisors, by giving each lower division student a faculty member to whom the student can turn in an emergency, by providing for a greater accessibility of courses and greater flexibility in scheduling them.

8. Institute a permanent system of remedial education in critical areas of "basic skills."

9. Try to give each lower-division student a "good mix" of course experiences during his first two years. That is, try to provide him with, perhaps, a large lecture course taught by a senior faculty member, a small class taught by a Teaching Assistant, a course taught entirely by television or by
sophisticated teaching machines, a medium-size lecture-discussion course, a small seminar course, a lecture-lab course, etc. Such variety would enrich the student's educational experience and would relieve some of the monotony and impersonality of the freshman and sophomore years.

B. Curricula--Recommendations

The role of the Curriculum Committees of the various Departments and Colleges as policy making bodies should be strengthened. Periodic reviews of all curricula should be practiced. As general guidelines for curriculum formation and revision we offer the following recommendations regarding the first two years.

(1) The basic criterion used in curriculum construction for the first two years should be "Will these requirements contribute to a more meaningful and beneficial educational experience for freshmen and sophomores?"

(2) Greater freedom of course selection and an absolute minimum of requirements in the first two years should be encouraged.

(3) Every effort should be made to bring current activities in the field of study to the attention of freshmen and sophomores.

(4) Any hint that a course is being required in order to provide students for a department or an individual faculty member should demand a careful investigation.

(5) Credit given for any course on any one of the four campuses should be accepted as general credit by any of the other campuses. Specific degree requirements on a given campus or in a given department preclude a more rigid statement.

(6) An administrative and budgetary commitment should be made for the development and implementation of multi-disciplinary courses at the introductory level. Efforts to acquire staff whose degrees and interests tend to be of an interdisciplinary nature should be increased.
C. Methods of Instruction: Recommendations

A number of things can be done to improve the quality of teaching at the freshmen and sophomore levels. Some will be realized in the long run while others can produce improvement in the short run. These are as follows:

(1) In the past few years the University has hired some distinguished professors at upwards of $25,000 who are noted for research and publication. These high paid professors teach little if at all and usually at the graduate level with relatively few students in the classes. A similar approach might be used to the improvement of undergraduate education at the freshman and sophomore levels. There could be established at the University some professorships referred to as "master teachers" or "distinguished teachers" who would be paid salaries comparable to those who have been brought in for their expertise in research and graduate teaching. These "master teachers" could be individuals presently on the staff who would be given the encouragement to direct more of their efforts to the freshmen and sophomore levels than they had in the past and such persons could also be recruited from other institutions where they have made a reputation for themselves as outstanding lecturers and teachers. This one recommendation could do more for freshmen-sophomore education in the short run than anything else. It would be an indication to the freshmen and sophomore students that the University really does care about the quality of teaching at that level.

(2) Encouragement should be given to those divisions and departments who manifest a desire to experiment with innovations in curricula and/or methods of instruction at the freshmen and sophomore levels. This encouragement can be provided by making money available for such innovations. This kind of encouragement has been provided in the past by the "improvement of instruction" fund which was available when University resources were somewhat more plentiful. This same kind of encouragement ought to be provided when such resources again are available.

(3) Present policy with regard to the granting of sabbatical leaves either precludes or discourages persons from taking such leaves to redesign or restructure courses in order to bring about improvement in instruction. This policy should be changed so that members of the faculty can use sabbatical leaves not only for research but also to bring about the improvement in instruction of courses already existing or for new courses which are to be introduced.
(4) It appears that expediency will dictate the use of the large lecture and to some extent the use of graduate teaching assistants at freshman and sophomore level courses. This being so, divisions and departments should be encouraged or required to exercise greater care in the selection of their teaching assistants and in providing adequate training to those teaching assistants. This is the least that could be done in order to improve the caliber of instruction at the lower level undergraduate courses.

(5) Courses should be so structured and conducted that the greatest efficiency of time and energy of the student will be expended to obtain the most meaningful and beneficial educational experience. In other words, "cut out the busy work." A spirit of honesty and integrity on the part of the faculty members involved in the teaching of these courses is essential if this end is going to be realized.

The Committee full well realizes that the University administration is limited in what it can do by way of issuing directives to divisions and departments in accomplishing these goals. However, an important perogative that can be used effectively, is the distribution of resources. Objectives may be changed, methods of instructions can be altered, and curricula can be improved when divisions and departments are made to realize that resources will be distributed to attain these ends.

D. Attitude Toward the Students: Recommendations

In making a recommendation as to how the University of Missouri can improve its image in the minds of the freshman and sophomore students, many of the things that have been discussed in the recommendations in the preceding material would accomplish that end. In general, we must abandon some of the practices that have been engaged in in the past which, in effect, "use" the freshman and sophomore students for selfish university, departmental, and personal ends. As we periodically make an assessment of our educational program at the freshman and sophomore levels, the sole criterion
should be "Do the curricula and methods of instruction provide and contribute to a more meaningful and beneficial educational experience for freshman and sophomore students."

Student input in making an assessment as to whether or not this criterion has been met should not be overlooked. Let us make sure that these students are getting a better education than they would get had they attended a junior college. At the present time, this cannot always be said.

E. Special Consideration for First Two Years--Recommendations:

Although degree recognition of completion of the first two years is not recommended, there are certain circumstances which can make a two year degree program desirable.

The University should continue and expand (if demand warrants) programs leading to the Associate of Arts or similar degree, but only in those areas which can function properly in a university setting. The University should not compete with the junior colleges in areas which do not demand a university setting.

Because the council feels that students in the first two years should be accorded more attention and allocated more resources than has been the practice, the following two recommendations are offered:

1. The University should assure an advocate for the first two years. School and college deans could certainly assume this role if directed to do so by their chancellors.

2. Deans should be encouraged to budget program improvements for freshman and sophomore years. These budget requests should be given a high priority and require a specific accounting.
IV. General Concluding Remarks

Events and the temper of our times have presented us with a feverish problem, support of the educational mission of the University of our state. It logically seems that the task of those who sense this problem is, in every conceivable way, to articulate this public trust to the community at large.

In relation to the educational needs of the undergraduates of our University, our obligations seem clear. We must give occasion to our constituency within the University and the State to become responsible adult agents, the fully urban man that this age in time demands. We must cause them to realize consciously the web of interhuman reciprocity in which they are brought into contact with each other. We must cause the community to shed whatever blindness and prejudice of immaturity it may have toward educational goals and convince each one to accept a larger and freer role in fashioning the educational instruments of today. These instruments of education would provide greater human justice and cultural vision for all the young people of our State. We must call ourselves to come of age educationally in a time when the economic tides and pressures tempt us to be self-interested. We must be ever mindful that our collective actions as a community are likely to be far less noble than our acts as individuals.

The structure of our society does entail the autonomy of political, social and educational institutions. The University does not, however, have to retreat to a separate intellectual sphere, cut off from what the people of the State of Missouri consider the real issues of their lives. The University can reflect this concern for social justice, economic stability, urban renewal, and a more humane society. If the University would set itself free from preoccupation with its own institutional life, it will become a
disciplined community of scholars of social inquiry and active involvement in the midst of great search for meaningful priorities within public institutions. Charles A. Reich, in his *The Greening of America* says,

Organization and bureaucracy, which are applications of technology to social institutions, increasingly dictate how we shall live our lives, with the logic of organization taking precedence over any other values.

The University must, of course, recognize the reality that political action brings about political response. Such response would not be in the best interest of the university community. It is the view of this council that a meaningful underclassman experience in the university is one of the most effective means available as a response to public priority and need, while remaining outside the area of reactionary political response.

Particularly vexing problems face the University in fashioning its total program in new and alternative directions. We would call attention to the following quote from R. Buckminster Fuller:

I am enthusiastic over humanity's extraordinary and sometimes very timely ingenuities. If you are in a shipwreck and all the boats are gone, a piano top buoyant enough to keep you afloat that comes along makes a fortuitous life preserver. But this is not to say that the best way to design a life preserver is in the form of a piano top. I think that we are clinging to a great many piano tops in accepting yesterday's fortuitous contrivings as constituting the only means for solving a given problem. Our brains deal exclusively with special-case experiences. Only our minds are able to discover the generalized principles operating without exception in each and every special-experience case which if detected and mastered will give knowledgeable advantage in all instances.

Because our spontaneous initiative has been frustrated, too often inadvertently, in earliest childhood we do not tend, customarily, to dare to think competently regarding our potentials. We find it socially easier to go on with our narrow, shortsighted specializations and leave it to others—primarily to the politicians—to find some way of resolving our common dilemmas. Countering that spontaneous grown-up trend to narrowness I will do my, hopefully 'childish,' best to confront as many of our problems as possible by employing the longest-distance thinking of which I am capable—though that may not take us very far into the future.
A writer of antiquity once asked of his deity, "What is man that thou art mindful of him?" In our secular world the total human community has become our object of central concern. We might well ask of this community, "What are young people that we should be mindful of them?"

It is with sincere purpose and respect that we submit our reactions in the form of this report. Thank you for the asking.
A REPORT TO THE PRESIDENT--1971

by the

UNIVERSITY GRADUATE COUNCIL
UNIVERSITY OF MISSOURI
TO: President C. Brice Ratchford
FROM: University Graduate Council

Dear Mr. President,

What follows is a reply to your memorandum of 23 December to the University Graduate Council and to questions discussed in our subsequent conversations with you.

I. THE PROBLEMS OF GRADUATE EDUCATION

We share your awareness that education at the doctoral level in the University of Missouri needs thoughtful reappraisal. Within our University there must indeed begin a study of the present quality, general appropriateness, and future status of all doctoral programs in basic and professional disciplines. Missouri is by no means alone in facing this demanding task. On all sides, major universities now recognize that comfortable old assumptions about doctoral training can no longer be left unexamined. The University of Missouri must be no exception in the wide acceptance of the fact that graduate education faces new questions, considerations, and competition.

Such altered circumstance is by now a familiar story, tirelessly recounted by both professional literature and the public press. We here simply take due note of several developing conditions:

(1) Across America higher education is experiencing a decline in rates of growth of fiscal support.

(2) There is increasing concern that a number of young Ph.D.'s will be leaving graduate school unable to find appropriate professional employment.
(3) There is some feeling both upon and beyond American campuses that doctoral training has claimed too much of most universities' energies at the sacrifice of proper attention to other levels of educational obligation.

(4) There is a pervasive public sentiment that some doctoral programs in American universities are of diminishing usefulness, are weakened by outmoded and unimaginative design, or are debilitated by mediocre faculty and students.

These conditions challenge all universities involved in graduate education, including ours, to examine with unrelenting candor both the institution's philosophy and practices pertaining to doctoral training.

There are some special features to the University of Missouri's situation which make reconsideration of doctoral education especially imperative. It is important, we believe, that all members of our academic community join in recognizing these characteristics. Significant among Missouri's special problems are the following:

(1) The University of Missouri has within recent years grown to be four very different campuses, each with a potential for special contribution to the world of learning and to the people of Missouri. Each also has its own group of public and scholarly expectations. For the University even to approach fulfilling the opportunity and responsibility it now faces on four fronts will require ceaseless program planning and review.

(2) In the foreseeable future, available funding is likely to be inadequate to support all the endeavors the University of Missouri should undertake. Such funding may not even support properly those programs now under way.
This University may now possess some doctoral programs that will not be needed in years ahead. Some programs, including the best ones, are not now sufficiently financed. Some new and crucial doctoral programs have not been launched because of fiscal uncertainty. It has become incumbent on the University to determine whether it has been continuing programs of dubious quality or of decreasing significance so that available funds can be allocated both to raise the quality of continuing programs and to start new programs which may be required.

The University faces a need for swift decision and action.

Therefore, the University Graduate Council recommends that the President and his academic cabinet begin as soon as possible to lead a reconsideration and redefinition of the University's commitment to doctoral education. This venture, we think, should aim for fresh philosophical affirmations and a new interpretation of the role of each campus, as well as decisions on the continuation of some programs, the termination of others, and the anticipation of new endeavors. Such a momentous undertaking clearly must be directed from the highest administrative levels.

The Graduate Council has no illusions about the painful difficulty of this total review and redesign of doctoral education. However, we expect that the University would be able significantly to improve those doctoral programs it retains and that the institution's capacity to initiate needed new programs would be enlarged. In pursuing these objectives, the Council hopes that no genuinely helpful alternative or tactic will be discarded because of potential anxieties.

Whatever the outcome, this review of doctoral education can and must be made a positive and challenging venture. All members of the University
community must recognize that a thoroughgoing reassessment of doctoral education, considering both its quality and quantity, is nothing less than indispensable if our institution is to renew itself and become distinguished.
II. RECOMMENDED PROCEDURES FOR RE-EXAMINING DOCTORAL PROGRAMS

The Council is persuaded that a protracted or leisurely series of reviews would serve well neither the financial exigencies of this era nor the public image of the University - and certainly not the morale of the faculty and staff. If the jcb is to be done, it must be faced up to, planned intelligently, and implemented without delay. Decisions that are as unequivocal as possible should promptly be reached and announced.

A chicken-or-egg dilemma immediately presents itself. Should broad guidelines first be set forth, embodying campus missions, estimates of social need, required levels of productivity, and minimum measures of quality? Or should discrete and intensive evaluations of each program first be concluded, leading inductively to a composite ready for analysis and comparison?

A department-by-department or program-by-program evaluation conducted in the absence of some general criteria would risk lack of validity and comparability. On the other hand, an overly-prescriptive set of University-wide criterion guidelines might inadvertently precipitate spurious judgments or influence unduly the reliability inherent in the natural course of peer evaluation.

We propose an attempt to begin both ways at once, proceeding to engage in a series of approximations that would provide common general guidance to every program evaluation team and at the same time offer detailed information to groups charged with the formulation of University-wide policy. The entire process might run its course in a year.
In the first stage of the evaluation process, there should be collected for each doctoral program information on cost, productivity, faculty and need, together with whatever recent judgments of quality may have been made by outside authorities. Broad-gauge consultants probably not at the departmental level might be used in this process. With this information, some very large-scale conclusions might be drawn immediately by a presidential advisory group composed of chancellors and academic staff.

These conclusions might embody: (1) preliminary suggestions regarding campus mission as related to doctoral programs; (2) a list of programs which on the basis of outstanding quality, need, or appropriateness would not require further evaluation at this initial stage; and (3) a stipulation of the broad criteria of need, quality, and productivity on which evaluators would be expected to gather data and draw tentative conclusions for the remaining programs.

In a second stage simultaneous evaluation would be conducted of these remaining programs. While the precise stipulation of procedures should be a matter for detailed staff planning, the Council suggests that consultants from outside the University should be used as a part of the evaluation process and that one of the consultants evaluating each program should be a high-level administrator, experienced in forming judgments about that discipline.

In addition to reporting his data and rendering a detailed analysis, each evaluation should categorize doctoral programs in one of the following three ways:

(A) Of high quality, productivity, and demonstrated need: should unquestionably be retained and supported.

(C) Of relatively low quality or productivity, or not of great need: should be phased out.
(B) Of uncertain or questionable quality or productivity, or of need: evaluation should be continued.

The University-wide administrative panel would then review all reports, paying particular attention to programs categorized as (A) or (C). Some (A) or (C) programs might be re-designated as (B). Appropriate decisions should be made expeditiously concerning all remaining (A) and (C) programs with actions recommended to the Curators. (A) program participants would receive prompt and timely assurance of their continuing viable status, while personnel dependent on (C) programs would be accorded whatever treatment seemed most appropriate and considerate in their individual cases, and of greatest use to the University.

A composite analysis of the (B) programs would then indicate what next steps should be taken. Both the urgency and type of further evaluation of the (B) programs might be modified, depending on the number and kind of (C) programs to be terminated. In any event, more explicit criteria should then be developed in order to discriminate productively among the doubtful cases, some of which might require a complete second review, then or later.

Programs ranking high in all attributes except productivity should be studied to find solutions. For those of low quality but high need, more resources and better organization might be indicated, perhaps in collaboration with another campus. For those not greatly needed now in Missouri, some might be terminated, or in other cases projections might reveal a future need, which would suggest nourishment of a particular sort on a certain schedule.

Increased perception and sophistication and skill would surely develop all across the University as these procedures are pursued and refined. All deliberate speed is essential in the early stages, but as actions are taken and positive results begin to accrue there would be less drama and trauma, and a more measured and developmental posture could be assumed. For example, other
programs and research activities, as well as the professional and undergraduate programs and service and support activities not within the purview of the University Graduate Council, would profit from attention as well. The agenda ahead is long and continuing, but the principles and procedures outlined above should have at least some pertinence to the entire gamut of University affairs.
III. COLLABORATIVE EFFORTS

In direct response to your 23 December memo, University Graduate Council initiated an experiment in bringing departmental representatives from Chemistry, Mathematics, and Psychology together from the separate campuses. Its objectives, as clarified in retrospect, dealt with improving the quality and productivity of the present programs through cooperative effort and a longer time span approach to solving problems described in section I.

The Council suggests the following general observations:

(1) None of the groups explored seriously the comprehensive form of collaboration identified in the original charge to the Council, i.e., federation of two or more departments into some form of discipline group. It is important to recognize that this type of collaboration has not yet been accomplished, to our knowledge, elsewhere within other university systems in the nation. California has not done so, nor Wisconsin, Texas, nor North Carolina, nor even Florida. This has not been for want of trying. The obvious advantage of simultaneously economizing while enhancing quality has not been missed by these other institutions. But to date they have not been successful. This does not mean the University of Missouri will not be successful in its effort. But it does mean the solution we seek is not likely to be an obvious one or one easily implemented once discovered.

The Graduate Council is suggesting that it is imperative that a solution which has been tried and found wanting at other institutions be avoided here, or if such a solution is to be tried that it be adopted only after it has been carefully
analyzed and the reason for its failure noted and eliminated. It is important, the Council believes, for the University to get outside its own parochial perspective and profit by the efforts and experience of other institutions.

It may be that during the course of the summer or early fall the Council or some other agency should be charged with preparation of a careful report on collaborative efforts at other institutions. On the basis of such a report, a new approach to a federation effort might be defined. It would be premature to abandon the noble dream of the seventy-two chemists on the four campuses of the University combining to establish a most distinguished doctoral program in Chemistry, just as it would be premature to press for a form of federation now without a more careful set of guidelines.

(2) At a less demanding level, the reports from the disciplinary discussion groups appear in certain respects to have established some points where the groups on the different campuses are willing to complement each other's efforts and/or facilities. The discussions also have, doubtlessly, improved the level of current communication. In some ways this was positive, but in others it may not have been. On net balance, the Council feels the meetings and discussions may be considered to have been a beneficial experiment.

It may be that the chief advantages of collaboration at this level would include: 1) reduction in library, computing, and specialized equipment costs; 2) reduction in the number of too-
small and too-costly advanced seminars; 3) reduction in the
cost of distinguished faculty by avoiding duplication on
separate campuses of senior appointments in similar areas.
In a more positive light, where quality of doctoral programs
is concerned, discussions might lead to exchanges on the
character of a particular doctoral program, the quality of
graduate students, admission practices, joint colloquia,
service on doctoral committees, faculty appointments and
promotion, etc., all providing a stimulus to faculty on the
four campuses to move to a more demanding level in reviewing
what they are doing.

Collaborative efforts along these lines should be strongly
supported, in part through continued inter-campus discussions.
In areas such as Chemistry a more formal framework for discussion
might be considered for next year. Certainly the interaction
of undergraduate and graduate programs ought to be considered
in terms of both reciprocal influence and aggregate cost.
Incentives must continually be studied in order that the groups
may have proper guidance.

(3) There is serious question whether at this stage there would
be any advantage in pressing further discussions among new
groups except as they may be naturally inclined. The Council
is concerned that in the absence of more careful guide-lines
such discussions would be of little value and might increase
parochial interest and identification. The Council therefore
believes that only tentative steps toward collaboration among
kindred doctoral programs can be taken until the University has
re-stated both its philosophy and plan for doctoral education.
(4) The Council believes that some of the observations concerning limitations on integration or collaboration which the discipline discussion groups have made are valid. These should not be overlooked in the continuing effort to achieve meaningful graduate program cooperation. Perhaps the most important consideration in this connection is that undergraduate and master's level programs require space, equipment, and facilities on hand at each campus where a quality program is to exist. Even though particular areas of emphasis may be developed, there will unavoidably be duplication of some substantial facilities. This fundamental condition cannot be avoided, we believe.

(5) Finally, the Council concludes that collaborative efforts need to be related to other efforts the University will make in defining its appropriate modes of doctoral education. For instance, the Graduate Council foresees that several alternatives may become available in any new system for doctoral studies which the University may initiate. It anticipates that certain doctoral disciplines may have to be deposited on only one of the four campuses. Other programs may exist on more than one campus, but these must be tied by meaningful methods of collaboration. A third alternative may be to create certain University-wide graduate faculty groupings, each around a discipline. These would each have a center for doctoral training limited to one or two campuses, but with the four-campus faculty group significantly associated. The type of collaboration appropriate to each of these variations might not be the same.
When the University completed its most recent long-range planning document in 1968, it was anticipated that a large number of new doctoral programs would be established in the decade to come. It was expected that these programs would absorb a significant part of the increased graduate enrollment projected for the University over the decade (252%). Moreover it was expected that the new programs would strengthen undergraduate programs on each campus, would aid in the recruitment of distinguished faculties, would provide a vigorous and creative environment for teaching and research, would extend the University's service to the State by broadening its geographic base particularly in the urban areas, and would offer more flexible forms of doctoral training in settings other than traditional ones.

In the somewhat different climate of the 1970's, it seems clear that both the pace and extent of projected new program development will not be achieved. Nevertheless many of the earlier objectives remain valid, and it is likely that a smaller number of new doctoral programs will be established if at a slower pace.

Several arguments suggest the desirability of new doctoral programs.

**New Fields of Study**—There appear to be a small number of areas in which no doctoral programs presently exist within the University and where the need for doctoral training is developing. The University needs to maintain its flexibility to respond to these demands at the doctoral and at other levels.

**Enrollment**—Despite broad national concern with the possible surplus production of Ph.D.'s, it seems likely that there will be a continued growth in the numbers of students enrolled in doctoral programs, although at a slower rate than has been the case in recent years. Because the State of
Missouri has always been well below the national average in the training of doctoral holders, and particularly the State University (see Table I) the University should move toward its rightful place in doctoral education in relation to other leading universities in the nation. In any case, the demand for enrollment in doctoral programs is likely to remain high, and the University will need to respond to that demand at least in part. Although enrollment increases may be accommodated in part within established doctoral programs, in some cases new doctoral programs may offer the best vehicle for growth.

Service to the State's Urban Areas—Although doctoral-level training has traditionally been concentrated in academic centers with little regard for population centers, the pattern seems now to be rapidly changing. The clearest statement of the change has been expressed by the National Science Foundation in its conclusion that a doctoral-level institution can be justified within each urban area having a population of 500,000 or more simply to provide appropriate training for the local population. Although private institutions may play this role, they do so only if as a matter of policy and financial resources they make their programs widely available regardless of individual income and geographic origin. In any case, it seems clear that some new doctoral programs will be required on the state's urban campuses to meet the needs of the two principal population centers in the state.

Increased Flexibility of Doctoral Programs—Similarly, the University needs to explore methods for doctoral training different from the traditional ones. As has been suggested on a number of occasions, graduate training in the future may be a life-long activity, much more closely related than is now the case to an individual's professional career and activity. Individuals may increasingly maintain an ongoing relationship with a university throughout
their productive years. Although master's and doctoral degrees may be awarded at appropriate points in this association, they will represent less the completion of degree programs than benchmarks along a continuing educational path. Postdoctoral education may grow rapidly in importance as the emphasis on full time graduate study diminishes. In exploring these approaches to graduate education, the University may want to establish new doctoral programs of a different sort and in different geographical settings.

**Optimal Use of Specialized Faculty**—Where the University is successful in recruiting distinguished faculty in programs on one or another of its campuses, these faculty need to be regarded as a unique resource for the State. Participation by these faculty in doctoral programs may be one of their most important uses as a resource. To refuse to allow a graduate student to work with the most distinguished professor in his field because that professor is on a campus which does not offer doctoral programs in the area would seem to be a mistake. In some instances, it may be possible to provide for participation by faculty on one campus in doctoral programs offered on another. In other instances, the existence of a specialized core of faculty on one campus may provide an important argument for establishment of a doctoral program there. Such new doctoral programs may be much narrower in their focus, more specialized, and smaller than has traditionally been the case with doctoral programs.

**Strengthening of Undergraduate Programs**—Undergraduate education in the university setting has traditionally been distinguished from undergraduate training in a college setting by the greater diversity and richness of scholarly resources which rises from sophisticated research and educational programs. Doctoral programs with their research oriented faculty and specialized work, can be related to undergraduate and master's level programs in ways which
will enhance the quality of each. Although there are other means for improving undergraduate instruction, in some cases the cost of such alternatives may be as high as the cost for doctoral programs.
V. ADDITIONAL CONSIDERATIONS BEARING ON QUALITY

Although each of the campuses of the University is accepted as a doctoral institution with established doctoral programs, it seems clear that there will remain for the foreseeable future programs and disciplines on each of the campuses in which doctoral work will not be offered. If the campuses are to develop as distinguished institutions, alternative routes will need to be found to provide the high-level of demand, the stimulation, and creative excitement which have traditionally been identified with doctoral institutions.

Support for Research and Access to Research Facilities--It is difficult to visualize a distinguished university faculty which is not actively engaged in research or concerned with the scholarship of its various academic disciplines. In the absence of doctoral programs, special arrangements need to be made to assure appropriate faculty involvement in research. If research facilities cannot be made available on each campus, arrangements for easy and frequent access to such facilities are required. More frequent leaves of absence might be necessary. Perhaps regular arrangements for summer leaves in a research setting could be made. The possibility of establishing a variety of research institutes on different campuses, each designed to stimulate research in the absence of doctoral programs, might be explored. In appropriate disciplines, postdoctoral fellowships might be established to provide assistance with research which otherwise is typically provided by doctoral candidates.

Encouragement for Improved Teaching--In certain programs, principal emphasis might be placed on encouragement of excellence in both undergraduate and master's instruction. In such programs, encouragement and resources should be given for improved instructional techniques and programs, and special rewards should be established for excellence in teaching.
Arrangements for Quality Review--The quality of educational programs at the doctoral level has been traditionally monitored by national reviews which define the quality on the basis of faculty reputation and scholarly publications. In programs where research and publication are not to be emphasized, appropriate evaluation devices need to be developed.

The Cost of Excellence--The University has an obligation to provide doctoral education. In carrying out this important part of its mission it must seek ways of continuing to strengthen those parts in which it is approaching national distinction. How this University is to achieve recognized excellence and yet live within its resources is still to be resolved. One can say, however, that this is not a problem unique to the graduate program although a higher quality graduate program might be instrumental in the solution. As evidence of this comment, one can compare state support of nearby universities with their national rating as determined by Fawcett (see Table II). The Universities selected were those previously selected by the Commission on Higher Education for cost studies. Although many of these universities have other sources of income in addition to State and Federal funds, one can observe trends which indicate that those Universities with outstanding reputations are funded to a greater extent through federal funds. Further there is no indication that the average cost/student of these institutions is significantly different than those of emerging institutions.

Federal funding correlates with the reputations of the established Universities. In this regard, it is interesting to note the three year 54% growth in Missouri of federal funding during years when many universities are declining or showing only modest growth. It is also interesting to compare Missouri's lot with widely different graduate quality programs such as
Michigan and Wisconsin versus Arkansas. State costs seem to present an inverse correlation with graduate quality. In general, some highly-rated universities have relatively modest state support supplemented through grants and contracts which would have been unavailable except for strong graduate programs. It is worth noting, however, that these same highly-rated universities have been the recipients of long-term and substantial state support over the years.

As the Council reviews the achievements of the sixties it notes with satisfaction significant improvements in the quality and national reputation of the University's graduate programs. These gains must not be lost. It is crucial that a balanced development and growth pattern be maintained. It is imperative therefore, that the University marshall its resources, ever mindful of its unique obligation to the State of Missouri as the sole State institution for advanced graduate and professional education.
## TABLE I

**Doctoral Production, 1920-66, Selected States**

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* Memo - N. G. Fawcett, April 12, 1971
** Memo - B. Morton, September 30, 1969
*** Chronicle of Higher Education, April 21, 1969, Feb. 9, 1970
**** N.S.F. Report, August 1970
APPENDIX D

University Role and Scope and Program Evaluation

University of Missouri

1. Plan for Development of Unit Role and Scope Statement and for Appraising Academic Programs

2. Procedures for Academic Program Review

3. Procedures and Instructions for Providing Program Information

4. University Role and Scope Statement (Tentative Version)

October - December, 1971
I feel it is extremely important that each of you have information on the progress and direction of the University's self-appraisal which was initiated almost a year ago. Perhaps there are some unfamiliar with the nature and scope of this study. This comprehensive and lengthy evaluation of various University programs will not be taken lightly. It was a serious assignment, the results of which will have long-lasting effects upon the University. I am writing this letter to acquaint all of you with what must now be done for the sake of a better University of Missouri.

Let me briefly review the development of this self-appraisal. Earlier the chancellors, academic leaders of the campuses, and some University-wide academic officials met to develop procedures and plans for the institutional reappraisal. Also, five of the University's advisory councils received assignments involving a number of special concerns of the University faculty and administration, such as quality of undergraduate instruction, doctoral programs, public service functions, improved library collections and academic governance.

The results of these University-wide and campus-level discussions have been summarized in a document called Preface to Decision, which has been distributed to faculty on each campus. Those who have read this document may sense that the 1970-71 discussions deepened our realization of how much this University must venture if it is to improve in the days to come. Preface to Decision provides only a background. Now we must act decisively!

Perhaps the most important determination was to select from the Preface to Decision those areas of concern which the University ought first to face. Early last summer I met with the University's Academic Planning Council, which includes the four Chancellors and the Vice Presidents for Academic Affairs, Extension, and Research, to complete this task. The results were submitted to the Board of Curators as an "Agenda for Action."

This document contained ten specific areas for study and investigation by members of the University community during the year ahead. Briefly stated, they are:

1. Reconsider the commitment and mission of this four-campus University;
2. Define the function and scope of each campus;
3. Evaluate the University's commitment to doctoral education in the academic and professional disciplines;

4. Plan a general appraisal of all academic programs in the University, with the intent being eventually to make such evaluation a regular experience;

5. Launch a review of all non-academic endeavors, both functional and operational;

6. Design and begin a system whereby the efforts of all administrative leaders, from Department Chairman through President, can be periodically evaluated;

7. Revamp the University-Wide Council and Committee system.

8. Reconsider the University's policy on the admission, the retention, and the continuation of students;

9. Strengthen the process of communication throughout the University;

10. Renew attention to the University's relationship with other institutions of higher education in Missouri, as well as in the region.

I appreciate the fact that it is not realistic to expect that we can simultaneously undertake the ten projects listed in "Agenda for Action." However, the Academic Planning Council and I have underway three tasks deeply important for the University's future. Each of these arises directly from the insights developed during the 1970-71 self-scrutiny. To succeed, each one will require a determined, pragmatic and realistic approach on the part of every member of our academic community. These tasks are:

1. Redefine the role and scope of each campus and University-wide unit.

2. Begin assessment of all our academic programs to determine our strength and weaknesses.

3. Develop an improved administrative structure for the University.

I know that the first two of these are of special interest to all of you. I attach for your information the plan for appraising academic programs and other material related to these tasks. Before this semester finishes, the Academic Planning Council will have initiated the first steps toward an evaluation of four major program areas of the University. These are Engineering Sciences, the Schools of Education, the Biological and Health Sciences, and each discipline in which there now exists more than one doctoral program. These areas obviously embrace a major portion of University resources. Adjustments may have to be made. To assist the Academic Planning Council in designing the review of these four program areas, a Steering Committee has been appointed. This committee, composed of Deans Dale (UMKC), McFarland (UMR), McGowan (UMC), Walters (UMSL), with Vice President Nagel as chairman, will continue to assist the Council in future evaluations of the quality and extent of our commitment in all other academic fields. Many of you will also be joining in this endeavor. In another context, we will also be evaluating all of our non-academic commitments and activities.

As the Preface to Decision discussions last year made clear, the University faces a difficult but challenging future. With new opportunities before us and a desire to improve the quality of our endeavors, we have no choice but to submit our present commitments and activity to painful evaluation. Only by making the four campuses partners in one university and by determining where and to what extent our various academic programs can hereafter best be offered, will the University of Missouri become a place where teaching, research, and service truly thrive.

Through my office and that of your Chancellor you will be kept informed of plans and projects in general. What lies ahead doubtless will profoundly affect all of us.
TO: The Chancellors  
FROM: C. BRICE RATCHFORD

At the Academic Planning Council's meeting of 16 September in which you participated, two important documents were prepared and adopted. I am now transmitting these to you with the request that all the steps called for by these policies shall begin.

These two documents reflect the first major undertakings to be launched out of the insights derived during the 1970-71 period of self-study. The latter made it clear that we must establish as soon as possible a more realistic understanding of the role and scope of each campus and University-wide unit. This understanding should reflect present and anticipated circumstances in Missouri and the nation. Thus, the first plan which I enclose is to make possible this redefinition of unit role and scope by December 1971. You will note there are two important assumptions listed on which our thought about unit assignment and responsibility must proceed.

The second area of concern which was so clearly enunciated during the 1970-71 self-appraisal is to evaluate all of our academic programs. Not only is the quality of these programs an important determination, but such considerations as program continuation, combination, and location are also crucial. Obviously a new policy on division of responsibilities among the campuses and other units will have an important bearing on the context in which our program appraisal proceeds. The second document I enclose generally stipulates the spirit, method, and schedule through which we shall examine all of our academic ventures. I shall immediately appoint an Evaluation Steering Committee to assist the Academic Planning Council in this undertaking.

With these two steps, I believe that the University of Missouri has begun the process of thoughtful change necessary if the institution is to offer better teaching, research, and service in the years ahead. New circumstances call for significant modifications in our organization, programs, and methods. It is now incumbent upon all of us wisely to bring about this needed transformation.

CBR/cc

cc: Members of the Board of Curators  
Members of the President's Staff Conference
Plan for Development of Unit Role and Scope Statement

(Adopted by the Academic Planning Council, 16 Sept., 1971)

1. Each Chancellor and each director of a University-Wide unit will, in consultation with selected representatives of his choice, prepare a role and scope statement for his unit. This statement shall include an assignment of priorities, using the concept of justification from Base Zero. The statement is to be based on the following assumptions:
   (a) The University of Missouri will be comprehensive but no individual campus will be.
   (b) Each campus will have programs ranging from the freshman year to the doctorate in some areas.
2. The President, in consultation with his staff, will prepare a draft document on "Unit Role and Scope," using as resource material the Chancellors' and University-Wide division directors' submissions. The individual unit reports will be included as Appendices.
3. The President will send this draft of the "Unit Role and Scope Statement" to each member of the Academic Planning Council one week prior to their December meeting.
4. The December meeting of the Academic Planning Council will serve as the forum for revision and refinement of the "Unit Role and Scope Statement."
5. Material submitted by Chancellors and Directors shall not exceed three (3) pages, double spaced.

A Plan for Appraising University Academic Programs

(Adopted by the Academic Planning Council, 16 Sept., 1971)

I. Purpose

A. To establish throughout the University precedents for periodic review of all academic programs, thereby generally hereafter improving the University's endeavors through self-knowledge.
B. To strengthen the judgments which must immediately be made about continuing, relocating, adjusting, initiating, or terminating many doctoral and professional degree programs.
C. To make possible more cogent decisions concerning the future status and support of all ongoing academic endeavors, thereby enlarging the University's capacity to shift resources toward needed new activities.

II. Assumptions

A. This effort at program appraisal must be meaningful and fruitful. It must be completed quickly. It is likely to be painful. The anticipations of many persons and programs will be unavoidably curtailed or revised. Important resource documents for this appraisal shall be the 1971 Reports to the President prepared by the University-wide Graduate Council and the University-wide Undergraduate Council.
B. Such appraisal must be preceded by fundamental decisions from the administration and the Board of Curators about the role and scope of each campus. This perspective is required before significant determinations can be made concerning the continuation and growth of many programs, particularly at the advanced levels.
C. The University shall reassert as a guiding principle that each campus will have graduate programs at the doctoral level. It shall also announce that most fields in which the University offers doctoral education shall hereafter normally be centered on whichever seems to be the most appropriate campus under the new role and scope assignment. University-wide graduate faculty organization will be developed in many disciplines. Such organization shall permit students to have access to qualified scholars throughout
the University. It also will broadly encourage faculty participation in doctoral education.

D. It is likely that graduate education at the master's level will exist in most basic areas on more than one campus. Such programs should develop meaningful alliances with the relevant doctoral programs, regardless of the latter's campus location.

III. Plan

A. The President shall name a five-man Evaluation Steering Committee to be chaired by the Special Assistant to the President. This Committee shall assist the Academic Planning Council in carrying forward and coordinating the appraisal process as it proceeds upon and between the campuses. While decisions are being made during the Autumn 1971 Semester about the future status of each campus, preliminary information will be gathered about every academic program in the University. (See below for suggestions of insights to be sought about each program.)

B. During 1971-72, attention must be given to four University commitments of special magnitude and significance:
1. Engineering Sciences
2. Schools of Education
3. Biological and Health Sciences
4. All disciplines in which the University has more than one doctoral program.

The purpose is to determine how the University hereafter might most prudently meet its future obligations in each of these important areas through relocation, reduction in scope, or termination of present activities. Results of this study must be available in time for use in preparing the 1973-74 budget request.

C. By 15 May 1972, a schedule will be announced for review of all remaining academic programs, including those in Extension, likely to continue as part of each campus as defined by the role and scope philosophy. This evaluation will occur in the academic years of 1972-73 and 1973-74.

D. The appraisal process during the next three years should be guided as follows:
1. Wherever possible, comparable programs will be evaluated on a University-wide basis.
2. A review format will be prepared by the Evaluation Steering Committee and approved for general use on the campuses by the Academic Planning Council.
3. All evaluation teams will normally include appropriate persons from more than one campus, as well as authorities from beyond the University.
4. The aim of this three-year period of appraisal shall be to study these aspects of every program:
   a. Quality
   b. Appropriateness, significance, and need
   c. Cost
   d. Potential for change and improvement
5. Results of all appraisals will be forwarded to the Academic Planning Council and members of the Board of Curators with comments by the leadership of each campus involved.
6. In accordance with the revised mission of the University and the new role of each campus, the Academic Planning Council shall make appropriate recommendations about the future of academic programs to the President for consideration by him and the Board of Curators.
IV. Implementation Schedule: 1971-72

16 Sept. - 31 Dec.: Recommendations about the role and scope of each campus prepared for the Board of Curators.

20 Sept. - 1 Dec.: Preliminary information assembled about each academic program.

1 Nov. - 15 July: Appraisal is made of Engineering, Professional Education, Biological and Health Sciences, and duplicate doctoral programs.

15 May: Academic Planning Council announces remaining academic program evaluation process, which is to be completed during 1972-74.

SUGGESTED CATEGORIES OF INFORMATION TO BE ASSEMBLED ABOUT EVERY ACADEMIC PROGRAM IN THE UNIVERSITY

1. Program goals and means of achievement.
2. Program impact:
   a. Numbers and types of students attracted.
   b. Students completing majors and degrees.
   c. Graduates' career patterns.
   d. Contribution to general and extended education.
   e. Relationship to campus and total University.
   f. Research, extension, and service achievements.
3. State, regional, and national reputation.
4. Faculty status:
   a. Numbers tenured and untenured.
   b. Background and how recruited.
   c. Role and expectations.
   d. Accomplishments.
   e. How evaluated.
5. Future need for program in Missouri and in the nation.
6. Capacity of program for enlarged or adjusted use of its resources:
   a. What innovations have recently been introduced in program?
   b. What efforts at program review have been made recently through internal or external evaluation? What results?
7. Cost analysis. (Financial resources)
8. Physical, equipment, and library resources.
TO: FACULTY OF THE UNIVERSITY OF MISSOURI
FROM: C. BRICE RATCHFORD, PRESIDENT

This is in further reference to the University's efforts at self-appraisal described in the President's Bulletin (Vol. 2, No. 3) which you received under date of October 15, 1971.

In order that you may be kept fully informed of developments in our evaluation of academic programs, I am outlining in this communication the review procedures. We have a task ahead that is both difficult and challenging. It will require the dedicated energy and cooperation of us all.

PROCEDURES FOR 1971-74 ACADEMIC PROGRAM REVIEW

University of Missouri

Adopted by the Academic Planning Council, November 3, 1971

General Considerations

Pursuant to the "Plan for Appraising University Academic Programs" adopted by the Academic Planning Council on 16 September 1971, the following procedures are established for guidance in the appraisal scheduled for 1971-74. This analysis is expected to show what academic programs hereafter should be important for the University of Missouri on its several campuses, as well as how and where these endeavors should be carried out.

The following procedures are guided by the spirit of President Ratchford's letter to the faculty contained in the President's Bulletin, 15 October 1971. Furthermore, the review activities shall adhere to the import of the University's new conception of the role and scope of each campus. This concept will be presented by the President to the Board of Curators in January 1972. Another forthcoming document of importance for this review is a statement concerning the academic quality which the University hopes to achieve. Such a statement will be issued simultaneously with the establishment of each campus' role and scope.

The appraisal of academic programs recognizes that the University will probably never have funds sufficient to support all the efforts suggested by its mission. Resources will always be inadequate to sustain all the programs which faculty, students, public, and administrators would wish to establish or continue. The academic review which
now begins must therefore produce insights to enable the University wisely to refashion, redouble, or withdraw present program commitments on its campuses. Existing commitments are now beyond the University's capacity to provide support necessary for good quality and orderly development. In short, the procedures which follow seek to find a reasonable balance between the desires of the academic community and the realities of the University's circumstances.

Such balance may require an important adjustment in the outlook of persons associated with the University. The University can best serve its students and public first by a prudent assignment of varied specialties and emphases among its campuses and second by fostering collaboration among these programs. It thus is evident that a new and broader range of roles, assignments, and expectations henceforth will be placed upon campuses and programs. Additionally this will provide new learning opportunities for students of the University and new professional responsibilities for the faculty.

In contributing to the development of an outstanding and comprehensive University, each campus must have support sufficient for attainment of its academic responsibilities. However, before the University can hope to provide adequately for these continuing and new programs, a period of careful evaluation and subsequent change will be needed. The procedures set forth below seek to make such adjustment possible.

Program Evaluation Process

I. Program Inventory

A. During the period 15 November - 15 December 1971, departments whose programs are to be evaluated during 1971-72 will be asked to complete certain questionnaires. Through Forms D ("Departmental Information"), P ("Program Information"), and F (Faculty Information), the campuses will collect from departments and faculty members the basic information needed to begin appraisals and to move toward decisions. The same information will be gathered from all other programs after 15 January 1972.

B. Through its Chancellor, each campus will arrange for the distribution and collection of the inventory forms. Where possible, quantitative information will be provided for the forms from central information sources. Persons completing the forms will have opportunity to note and enlarge upon any information to be entered on such forms.

C. After a review at the campus level, the original copy of each completed Form D, Form P, and Form F shall be sent no later than 31 December 1971 to the Office of the Vice President for Academic Affairs. There they will be prepared for use by the Academic Planning Council and by Evaluation Teams.

II. Elements to be Involved

A. Evaluation Teams

1. These are to be chosen by the Academic Planning Council from panels of names suggested by the Steering Committee.

2. Each team will contain three to five appropriate authorities from outside the University. At least one member of each team will hold or have recently held a significant administrative post in a major university.

3. As the first stage, during 1971-72, a team will be chosen to review each of the following academic areas and disciplines.

   a. Engineering Sciences
   b. Schools of Education
   c. Biological and Health Sciences
   d. Chemistry
   e. Geology
   f. Mathematics
   g. Physics
   h. Psychology

   All other programs will be examined by the Academic Planning Council for determining the timing and extent of their ultimate review.

B. Campus Committees

Each Chancellor will use an appropriate review committee(s), which will include faculty and students. This committee arrangement will have as ex officio participants the campus member of the University-wide Steering Committee and the Vice President for Academic Affairs.
C. The Steering Committee

1. For 1971-72, this Committee has as members Dean Wesley Dale, UMKC; Dean John McGowan, UMC; Dean Robert McFarland, UMR; Dean Everett Walters, UMSL; and Vice President Paul Nagel, Chairman.

2. It shall be host to the Evaluation Teams, with University Hall being the center of operation for the Teams.

3. Committee members shall escort Team members in any campus visits.

D. Academic Planning Council

1. It consists of the President, the four Chancellors, and the Vice Presidents for Academic Affairs, Extension, and Research.

2. It shall be final recipient of all evaluation material. It shall propose adjustments in the University's academic system to the President.

E. President and Board of Curators

1. The President shall make final recommendations on the steps to be taken to improve the University's academic programs.

2. The Board shall act upon the recommendations brought to it by the President concerning major revisions in the duration, extent, and location of academic programs.

III. Procedures, 1971-72

A. By 15 January 1972, Evaluation Teams will be chosen by the Academic Planning Council and schedules will be fixed for evaluation of each prescribed area and discipline to occur in the period 15 January 1972 - 1 May 1972. (See II, A, 3.)

B. Background materials are provided for the Evaluation Teams well in advance of their visit to the University. This will include the program information forms.

C. Teams are sent the five questions which the University will ask about each program area or discipline. Answers to these questions will comprise the heart of their report and thus will be the essential element in the evaluation process. (See IV for list of questions.)

D. When visiting the University, each Team will use University Hall as headquarters. Each Team will select its own chairman. On every campus visit the entire Team will participate. University planes and cars will be at the Team's disposal. Arrangements for campus contacts will be made for the Team by the Steering Committee and the Chancellors involved.

E. At the beginning and upon completion of the visit, each Team will have an interview with the President and the Chairman of the Steering Committee.

F. Team members will send to the President replies to the evaluation questions (Section IV) within a fortnight after close of their visit. These replies may be individual or composite, as the Team may choose.

G. The Steering Committee shall circulate the Team's report to the appropriate Chancellors for comment. Campus reaction and response should be solicited by the Chancellor from the ad hoc Committee on Campus Future, from departments involved, and from other appropriate sources. Responses shall be returned to the Steering Committee within thirty days.

H. The Steering Committee shall send to the Academic Planning Council the reports of the Evaluation Teams and the Campuses' responses, along with a summary report prepared by the Steering Committee. This summary report will suggest the basic insights and directions which, in the Steering Committee's judgment, emerge from the completed review.

I. The Academic Planning Council shall use all reports as the basis for recommendations to the President on the future of the academic area or discipline under consideration. Copies of these recommendations shall go to each Chancellor for distribution to his advisory groups. Any comments shall be directed to the President within ten days.

J. The President shall make final recommendations about the future of programs for action by the Board of Curators. Such determinations can then become a part of the final preparation of the 1973-74 legislative budget request. The 1972-73 operating budget will be
developed in light of the broader implications of the January 1971 policy on campus role and scope.

IV. Questions for Evaluation Teams

University of Missouri
Academic Program Review 1971-74

Questions to Which All Evaluation Teams Are Asked to Reply Concerning the Academic Areas or Disciplines They Have Reviewed.

These questions are asked in the context of the University's new understanding of the role and scope of each campus. An additional consideration is the statement of the University's standards and aspirations concerning academic quality. Replies to these questions will be of great assistance as the University determines the changes and developments needed for its academic endeavors truly to thrive within a four-campus University.

1. In its present state, what appear to be the area's or program's strengths? What are the weaknesses? On which campuses are these to be found?

2. Hereafter should the University support this program or area? Among the many factors to be considered here are: What is society's future interest in this program likely to be, and what are the prospective numbers of students who might wish to enroll in it?

3. What portion, if any, of the existing program should be continued? On which campuses and to what extent?

4. What portions, if any, of the existing program should be reduced or terminated? On which campuses and to what extent?

5. What new phases of this area or program should be established? On which campuses and to what extent?

V. Procedures, 1972-73 and 1973-74

A. By 15 May 1972, the Academic Planning Council shall announce the schedule by which all academic programs remaining to be evaluated shall be considered during 1972-74.

B. Procedures outlined in III above shall be followed during 1972-74.

Implementation of Decisions

I. All reorganization in programs to emerge from this review shall be coordinated by the Academic Planning Council.

II. Guidelines for change will be issued by 15 July 1972. This will prescribe the manner in which the decisions about the University's future shall be carried out.
Procedures and Instructions

for Providing Program Information

General

Three forms have been prepared for use in the collection of basic program information on the teaching departments, programs, and faculty of the University:

- Form D - Departmental Information
- Form F - Faculty Information

A supply of the forms will be provided each chancellor who will establish the mechanism to be used on his campus for completing them and for routing completed forms to the Office of the President.

It is suggested that each chancellor designate a member of his staff to assume the immediate responsibility for distributing the forms, for responding to inquiries from those who are completing them, for reviewing and assembling completed forms, and for forwarding completed forms—in other words, for providing the day-to-day coordination required at the campus level. It is expected that this coordinator will not be the campus member of the University Steering Committee for the effort, but he should seek advice and assistance from the local Steering Committee member in responding to questions and on other phases of his responsibilities. He should also feel free to seek advice from the Vice President for Academic Affairs and others in the University central offices who are assisting in the reappraisal program.

A few items in the forms require quantitative information which may more conveniently and consistently be provided from central information sources, either at the central office or campus level, than by those, principally department chairman, completing the forms. In manners to be outlined below and to the extent possible, these items of information will be provided to those who are completing the forms in such a way that they may review it, modify it if necessary, and thus retain responsibility or at least knowledge of all of the information forwarded on the forms they complete.

Specific comments and instructions regarding each of the three forms follow:

Form D - Departmental Information

This form is to be completed for each teaching department of a campus. For non-departmentalized schools and colleges, the school or college is, of course, considered to be the "department" and Form D will be completed for the school or college.

As an aid to the campus, a list of the teaching departments, organized by school or college, has been prepared for each campus and is attached. Thus, one Form D is to be completed for each department shown on this list. Because these lists were prepared from central records and because the way in which a "teaching department" is defined may not be unequivocal, there may be a few instances in which this list will need to be revised at the campus level.
The quantitative data required for part II, items B and C (general operating funds, but not grant funds) and for part V will be provided by the Office of the Vice President for Finance and Comptroller. Specifically, a one-page form containing the data required for these items will be prepared for each department and transmitted with the blank forms to the Chancellor.

Regarding part III, item B (Service Teaching), it is suggested that each campus attempt to provide the specified student credit hour counts from central campus sources, but that if this is infeasible or impossible, departmental data or estimates be used. At a minimum, the total student credit hour counts may be available from Office of the Registrar records.

Form P - Degree Program Information

This form is to be completed for each degree program (major) offered at each campus. Bachelor, first professional, masters and doctoral programs are to be described on separate forms.

The attached lists show, in addition to teaching departments, the degree programs for which each department is responsible. Thus, a separate Form P is to be completed for each line in the "Degree Program" column of the list, subject to the following two considerations:

1. Because the lists were prepared from central records, the entries on them may not agree completely with the manner in which the campus described its degree programs. Revisions of the lists may be made because of this.

2. Programs at the same level, but leading to different degrees, for example, BA or BS and MS or MST, are shown as single entries in the lists. In those cases in which the objectives, curricular requirements, and other characteristics of the programs leading to the two or more degrees at the same level are generally similar, they may be described on the same Form P. If they are, in fact, dissimilar in nature, a separate Form P should be prepared for each separate degree for which a program is designed to lead.

Most degree programs are associated with teaching departments and this association is shown on the attached lists. Interdepartmental and interdisciplinary programs are also included on the lists and associated with a school or college, where this appears appropriate. There also are some programs, the responsibility for which crosses school or college lines. Responsibility for completing the Form Ps for such programs can be assigned at the campus level.

Items 10, 11, 12, and 14 of Form P require enrollment and degree data. It is suggested that each campus attempt to provide these data from central campus sources. This may not be possible in all cases and departmental data sources may need to be used. At a minimum, the campus level review of completed forms should include a verification of the accuracy of appropriate totals for schools or colleges and the campus of the data reported on the forms for these items.
This form is to be completed for each full-time instructor to professor affiliated with a teaching department.

As an aid in completing these forms, a list of full-time faculty affiliated with each department, as shown in staff budget records will be prepared and sent to each campus in a manner in which the lists may be distributed to the departments. The list will show not only the individual's name and academic rank, but also the source of funds data required for item 1. Thus a Form F will be completed for each individual appearing on this list and source of funds data will be provided as an aid in completing item 1.

Undoubtedly, the lists of faculty members provided will not be entirely complete and will need to be checked and supplemented at the campus and department levels. Revision in the provided data on source of funds may also be expected to be necessary in some cases.

Individuals with affiliations with more than one teaching department should not be required to complete a separate, duplicate, form for each of the departments involved. For such individuals, the form should be completed for that department with which his affiliation is greatest or the one that provides the greatest portion of his salary. For the other department(s) with which he is affiliated, forms should be completed through item 1, only, and a notation made at the top of each such "secondary" form indicating "See Form F for Department of ___________“.

Disposition of Completed Forms

The original copy, only, of each form will be completed and routed to the Office of the Chancellor. The Chancellor will transmit completed forms to the Office of the President. Duplicate copies will then be prepared. Three copies of each form will be returned to the campus for further distribution as needed on the campus.
Form D - Departmental Information

Campus: ____________________________ School or College: ____________________________

Department: ____________________________

I. Mission

A. Majors Offered. (Complete one Form P for each degree program now offered by the department. Baccalaureate, masters, and doctoral level programs are to be described on separate forms.)

B. New Degree Programs Under Consideration. Identify any new programs (majors) that have been or may, within the next few years, be proposed by the department:

<table>
<thead>
<tr>
<th>Brief Title</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C. Service Teaching. Describe the purpose(s) of the instruction the department provides for students other than majors in the department. Does it satisfy general education requirements? Provide general education electives? Provide specialized courses required or elected by students in majors in other departments? Etc? Be as brief and specific as possible:

In terms of their offering and staffing, describe the relative priority given service courses in comparison with courses for departmental majors.
I. Mission (continued)

D. Departmental and Separately Organized Research. (State funding). Briefly describe the nature of and provisions made for "non-sponsored" research, creative activity, and scholarship by the faculty of the department. Include references to campus and U-Wide research centers which facilitate faculty research. Indicate how the activities relate to the teaching and extension-public service missions of the department:

E. Sponsored Research. (External funding). Briefly describe the purpose(s) of and provisions for sponsored research in the department and in any related research centers:

F. Extension-Public Service. Briefly describe the extension and public service mission of the department, the activities carried out in pursuit of this mission, and the priority given them:
II. Resources

A. Faculty. Complete one Form F for each full-time faculty member (Instructor to Professor) affiliated with the department. (Summary data will be prepared from the individual forms).

B. Provide 1971-72 budgeted total salary and FTE information on the other teaching staff of the department as indicated below:

<table>
<thead>
<tr>
<th>Department’s Gen. Op. Budget</th>
<th>Grant and Other Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Salaries</td>
<td>FTE</td>
</tr>
<tr>
<td>Ass’t Instr., Lecturer Res. Assoc., Etc.</td>
<td>$________</td>
</tr>
<tr>
<td>Graduate Assistant</td>
<td>$________</td>
</tr>
</tbody>
</table>

- Comment briefly on the utilization, workload, and competency of the current junior faculty:

C. Provide 1971-72 budgeted total salary and FTE information on the support staff of the department as indicated below:

<table>
<thead>
<tr>
<th>Department’s Gen. Op. Budget</th>
<th>Grant and Other Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Salaries</td>
<td>FTE</td>
</tr>
<tr>
<td>Secretarial-Clerical</td>
<td>$________</td>
</tr>
<tr>
<td>Technical-Other Support</td>
<td>$________</td>
</tr>
<tr>
<td>Miscellaneous Payroll</td>
<td>$________</td>
</tr>
</tbody>
</table>

- Comment briefly on the utilization, adequacy, and competency of the fall 1971 staff in these categories:
II. Resources (continued)

D. Physical Facilities. Cite specific strengths and limitations of the space available to the department in relation to requirements of its teaching and research programs:

E. Equipment. Cite specific strengths and limitations of equipment available to the department in relation to requirements of its teaching and research programs:

F. Library. Briefly evaluate the adequacy of campus library holdings for the teaching and research programs of the department:

G. Computer. Briefly evaluate the adequacy of campus computer facilities and services for the teaching and research programs of the department:
Form D - Departmental Information (continued)

III. Accomplishments

A. Degree Production. (Will be summarized from Form M data.)

B. Service Teaching. Indicate the extent of service teaching by providing the following breakdowns of fall 1971 student credit hours taught in the courses of the department.

<table>
<thead>
<tr>
<th>Level of Student</th>
<th>Majors</th>
<th>Non-Majors</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman-Sophomore</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Juniors-Seniors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate &amp; Graduate, Prof.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(If actual counts are not available, enter estimates and identify with "*".)

Comment on the demand for service teaching and the degree to which the department has been able to meet this demand:

C. Research. Cite any major contributions in research, creative activity and other scholarship of the past two years, not reported on Forms F:

D. Extension-Public Service. Cite any major contribution in extension-public service of the past two years, not reported on Forms F:
IV. Program Review and Evaluation

A. What efforts at program review (internal or external) have been made in the department in the last two years and what were the results?

B. What steps, if any, have been taken by the department in the last two years to increase efficiency and productivity?

C. What steps, if any, have been taken by the department in the last two years to increase program quality?
Form D - Departmental Information (continued)

V. Financial Resources and Costs

A. General Operating Fund Expenditures (1968-69 to 1970-71) and Budget (1971-1972), to nearest dollar:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S &amp; W</td>
<td>$________</td>
<td>$________</td>
<td>$________</td>
<td>$________</td>
</tr>
<tr>
<td>E &amp; E</td>
<td>$________</td>
<td>$________</td>
<td>$________</td>
<td>$________</td>
</tr>
<tr>
<td>Total</td>
<td>$________</td>
<td>$________</td>
<td>$________</td>
<td>$________</td>
</tr>
</tbody>
</table>

B. University Unit Cost Study Data (Total Teaching Staff Salary Costs, All Funds):

<table>
<thead>
<tr>
<th>Direct Instructional Salary Cost Per SCH</th>
<th>Fall 1968</th>
<th></th>
<th>Fall 1970</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fr-So</td>
<td>Cost per SCH</td>
<td>Amount</td>
<td>Percent</td>
</tr>
<tr>
<td>Jr-Sr</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pr-Pf</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr-M</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gr-D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adv. Pf.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Salary Costs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching</th>
<th>Amount</th>
<th>Percent</th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$________</td>
<td>100 %</td>
<td>$________</td>
<td>100 %</td>
</tr>
</tbody>
</table>
VI. Comments. (Additional points may be added as needed to clarify the mission and status of the department and its programs.

A. Chairman

B. Dean

C. Chancellor
Form F - Faculty Information

Campus: __________________ School or College: __________________

Department: __________________

Faculty Member's Name: __________________

Academic Rank: __________________ Social Security No.: __________________

Date of Birth: __________ Date of Appointment: __________ Date of Rank: __________

1. Source of funds, current appointment:

   General Operating Fund Account of this Department
   General Operating Separately Budgeted Research
   Sponsored Project Funds
   Extension Funds
   Other Department(s)
   Other, Specify: __________________

   Total __________

2. Tenure Status (check one):
   _____ On Tenure
   _____ Working Towards Tenure
   _____ Not in Tenure System (non-regular)

   Date Probation Period Ends: __________________

3. Administrative title(s), if any:

4. Highest Degree __________________ Subject Field __________________

   Granting Institution __________________

5. Last position held before initial appointment at University:

   Institution or other: __________________

   Title: __________________

6. Subject field(s) of specialization of teaching and research:

   __________________

7. Number of weekly class contact hours of teaching, fall 1971: __________

   Number of students in independent study courses, fall 1971: __________

   Number of dissertations being directed, fall 1971, masters: __________

   doctors: __________

(Over)
8. Contributions to curriculum development and innovations in teaching methods:

9. Record of publications (Include items accepted, but not published):

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Last 2 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monographs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapters in Book and</td>
<td></td>
<td></td>
</tr>
<tr>
<td>papers in referred journals</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other contributions of research, scholarship, and creativity:

10. Identify the one or two most significant contributions in research, scholarship, or creativity:

11. Cite the one or two most significant contributions in extension and public service:

12. Cite one or two most significant contributions to University in administration or service on important campus or University committees:

13. Cite instances of national and international scholarly or academic recognitions, e.g., national fellowships, awards, offices in national organizations, invited papers, etc.:
Form P - Degree Program Information

Campus: ____________________________________ School or College: ____________________________________

Department: ____________________________________

Major: ____________________________________ Degree(s): ____________________________________

(Degrees may be BA, BS, BSAG, MA, MS, MBA, PhD, EdD, JD, etc., but each baccalaureate, masters, and doctoral level degree program (major) should be described on a separate form.)

1. Year program (major) initiated: _____________________

2. Areas of concentration or specialization available within the major program, if any:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

3. Discuss the goals of the program in terms of specific objectives. For example, is the program designed to provide a “depth” component of a “liberal education”? To prepare individuals for more advanced study in the same or related fields? To prepare individuals for professional practice or employment in a specific area of endeavor?

________________________________________________________________________

________________________________________________________________________

4. Comment on the need and demand for the program at the campus and in the University:
5. Comment on the need and demand for the program in the community, state and nation:


6. Comment on changes, if any, needed in the program to meet the need and demand for it cited in the preceding two items:

7. Degree requirements. Enter numbers of credit hours:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>General education requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Courses in this department</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Required courses in other departments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research and dissertation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Briefly describe any special approaches to instruction that are used because of specific program objectives:
Form P - Degree Program Information (continued)

9. Briefly describe any additional curricular or instructional innovations that have been introduced for the program.

10. Record the enrollment (number of students) in the major for the current and preceding four fall semesters. (For undergraduate programs include only juniors and seniors here.)

<table>
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</table>

(For undergraduate programs with freshman and sophomore enrollments, enter counts of them here.)

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</tbody>
</table>

11. What is the geographic source of the fall 1971 students?

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Missouri</td>
<td></td>
</tr>
<tr>
<td>Other States</td>
<td></td>
</tr>
<tr>
<td>Foreign</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

12. What percentage of the fall 1971 students are full time? __________%

13. Cite available evidence of the academic quality of the fall 1971 students. Has student quality changed in the five-year period?
14. Record the numbers of degrees granted for the major in each of the past five years:

<table>
<thead>
<tr>
<th></th>
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</thead>
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<td></td>
</tr>
</tbody>
</table>

15. Cite available information on the post-degree activities and accomplishments of recent degree recipients.

16. Additional comments or information on the degree program may be provided:
Role and Scope

You will recall that procedures outlined in the President's Bulletin of 15 October 1971 (p. 4), stipulated that by now I would have drafted a tentative policy statement concerning the future role and scope of the campuses and University-wide units. Accordingly, this tentative version of the University's future design has been completed and has already received some circulation. So that everyone may have a chance to read this draft statement, I am including below its entire contents.

As the guidelines adopted by the Academic Planning Council indicated, this draft document is now being considered by each Chancellor. They will be discussing a final role and scope statement with me on 20-21 December. I know that the Chancellors join me in welcoming any helpful alternative ideas or proposals which may have come to mind since the campuses discussed their futures earlier this autumn. Any such suggestions should be sent to the Chancellors immediately.

Let me repeat: what follows is a tentative version. It contains what I now believe to be the wisest course of this University hereafter to follow. It is important to stress that the implications of this proposed policy make all the more crucial the evaluation of every academic program.

I am looking forward to the responses which the Academic Planning Council will make to this version next week. I would also point out that whatever plan is finally determined will require several years to implement fully. This certainly means that graduate students in any significantly affected programs would have adequate opportunity to complete their degree requirements.
THE UNIVERSITY OF MISSOURI: ITS FUTURE

This policy statement has two purposes. First, it newly defines the role of each campus and certain University-wide units in the University's future. Second, it stipulates generally the range or scope of programs hereafter to be maintained on each campus. The policy emerged after much thought and discussion on the campus and University levels. It is necessarily an adjudication among many aspirations and relentless circumstances.

I Principles and Conditions

Assertions about the role and program scope of each campus and unit are timely. During 1970-71, the University took a long look at itself. It found a need to improve existing programs, research, and public service efforts. It found resources in faculty, staff, money, libraries, equipment, and buildings often so over-committed or so limited as to handicap severely the University's numerous current programs and to hamper the development of new offerings required by social and intellectual change. Finally, the self-appraisal found wide confusion over the nature of one university located on four campuses.

These and other reasons make it evident that a successful University of Missouri hereafter will require a more explicit and reasonable definition of the role and expectation placed upon each campus and unit. The policy which follows is only a first step in creating a stronger University of Missouri. It stipulates the future location in the University of Missouri of its many academic programs. Thus, this policy establishes where program emphases will occur, leaving the extent of continuing and new programs to await the evaluations taking place during 1971-74. Only through such clarification can the University more judiciously use its existing resources by diminishing program duplication and by enlarging inter-campus collaboration. The University of Missouri to come must arise from collaboration among the four campuses. A principle stated in the President's Bulletin of 15 October 1971, affirms that: "Only by making the four campuses partners in one university and by determining where and to what extent our various academic programs can hereafter best be offered, will the University of Missouri become a place where teaching, research, and service truly thrive." Upon this principle the following guides for the future University of Missouri are built.

Limited funds and growing public expectations have made several imperatives obvious in establishing a new role and scope for each campus. Among these are needs to:

* Strengthen undergraduate learning in all areas.
* Concentrate and improve graduate and professional programs by assigning special responsibilities among campuses.
* Seek on every campus to bring related fields of study more closely together.
* Develop collaboration among campuses sharing certain program responsibilities. Advisory Committees will be established where needed for key graduate and professional areas. In these same areas, faculty members who qualify may participate in graduate and professional programs regardless of where these programs may be centered.
* Recognize that, as some programs on every campus are relocated, reduced in scope, combined, or enlarged in character, this will have broad effect on many existing programs which must be carefully studied. For instance, service teaching requirements now imposed on certain departments may be diminished or increased as the changes inherent in this policy are implemented.
* Realize that hereafter there will be a wider variety of significant faculty assignments. No longer should the University faculty member's role be uniformly distributed between teaching and research. A variety of assignments involving instruction, public service, or creative effort hereafter will be appropriate for University faculty and duly rewarded.
* Reconsider the quality which the University hopes to achieve in its various endeavors. This has implications for the types and numbers of students to be admitted and retained, especially at the graduate and professional levels. The University must be mindful of the fact that it is unlikely ever to have the resources for placing all program opportunities on every campus where a need may exist. Nor will the University be able to provide in many programs a place for every student who seeks admission.
* Understand that the University's plan for its future as well as for its academic and administrative endeavors should regularly be reviewed. This, policy for the University's future will be carefully evaluated each decade. Academic and administrative programs will be studied at least every fifth year.

What follows, therefore, is a concept to guide the University of Missouri in the
period 1975-1985. The interval preceding 1975 will be needed to make the appropriate adjustments, to complete the program evaluations, and to generate a wide understanding of the University's changing character and operation.

II The University of Missouri-1975

By 1975 the academic organization of the University shall consist of the following features:

* Four campuses. Three of these, at Columbia, Kansas City, and St. Louis, shall be broadly designed, but each shall have special responsibilities at the graduate and professional levels. The fourth campus, at Rolla, shall have a more limited mission, largely that of serving as the University's center for programs in basic engineering and in some of the sciences. Together these shared and unique roles among the four campuses constitute the University. No campus shall be complete unto itself. The University must be a genuine association among all campuses if it is to attain stature as a modern scholarly institution.

* An Extension program whose scope is the breadth of the University itself, as well as that of the state. Not only must Extension arrange for contribution from the University's best programs and services to reach all parts of Missouri, but it must also help discover for the University the concerns of the citizens. Extension shall also provide a setting for many students' research, professional, or para-professional work.

* A University Research Office which centrally coordinates research beyond the individual and departmental levels. Its concern shall be for the broad research mission of the University, with particular attention to those unusual responsibilities and agencies which cannot be assigned to any campus.

* The President's Academic Planning Council shall oversee the proper development of the University in its new design. It shall be advised by Program Committees for those academic areas where specific academic disciplines are matters which await results of the program appraisals during 1971-74. However, this prospectus for each campus shall immediately become the basis for planning and decisions by campus and University leadership. This prospectus assumes that except for rare instances in disciplines where doctoral work is to be continued or begun, only one such program shall exist. Collaborating campuses should share such a program when feasible.

A. The campus at Columbia

1. To offer a broad range of undergraduate studies in the liberal arts. Many of these shall lead to the baccalaureate degree. In the various areas these studies may include:

   - Physical, Biological, and Mathematical Sciences
   - Biology, Mathematics
   - Chemistry, Physics
   - Computer Science, Statistics
   - Geology
   - Social Sciences
   - Anthropology, Political Science
   - Economics, Psychology
   - Geography, Sociology
   - Humanities
   - Art, Foreign Languages
   - Art History, History
   - Classical Languages, Linguistics
   - Geography, Sociology
   - Dramatic Arts, Philosophy
   - English

2. To be the University's center for research and postgraduate studies in the medical sciences. This shall include the areas of:

   - Medicine, Surgery, Dentistry
   - Pharmacy, Optometry
   - Nursing
   - Public Health, Environmental Health

3. To be the University's center for education and training for the communication arts and professions. This shall include the areas of:

   - Journalism, Radio-Television
   - Library & Information Science, Film
   - Speech

To attain this character by 1975, the University must do the following:

* Implement the revised role and program scope for each campus.
* Determine the future extent of all programs, aided by the evaluations going on during 1971-74. This shall be guided by the knowledge that all programs, including faculties and other resources, belong to the University, and are not the sole possession of any campus. No program's current status necessarily assures that such status will be continued.
* Begin adjustments at once in the fiscal and building plans for each campus. These adjustments will have major impact upon legislative budget requests as well as on the preparation of operating budgets. Such an impact should be apparent well before 1975.
* Begin consideration of new programs and services made possible or necessary by the changes outlined below.
undergraduate and advanced programs in Agriculture. The future design and philosophy of this broad academic area await the impending program appraisal.

4. To provide at the undergraduate and master's level offerings in business and public administration. These may include the specialties of:
   - Accounting
   - Business Administration
   - Finance
   - Marketing
   - Public Administration

Such programs shall comport with the related advanced study opportunities at the Kansas City and St. Louis campuses.

5. To provide the basic undergraduate and master's level professional work in Education. Advanced graduate training in this area will be offered in collaboration with the Schools of Education on the Kansas City and St. Louis campuses. Details as to special assignments await the findings of the program evaluation now underway. A Committee on Professional Education will advise the Academic Planning Council on all development in this area.

6. To be the University's center for graduate study in the Humanities. This may include doctoral programs in these areas:
   - Art History
   - Archeology
   - Classical Languages & Studies
   - English
   - History
   - Philosophy
   - Speech
   - History

7. In partnership with the Kansas City campus, to be the center for advanced scholarship and professional studies in the Health Sciences, Allied Health Professions, and Biological Science areas. The extent of these programs awaits the results of current appraisals. In due course advisory committees on these program areas will be established by the Academic Planning Council.

8. To be the University's center for work in Veterinary Medicine.

9. In partnership with the Kansas City campus, to provide professional training in the field of law.

10. To offer selected graduate programs to the master's level in the Social Sciences, the Mathematical Sciences, and the Physical Sciences. These programs shall be designed to comport with the related doctoral programs assigned to centers of graduate study. Carrying forward this concept will depend upon the results of impending program appraisals.

11. Final decision on the future of Engineering on the Columbia campus shall be deferred to mid-1972 when this discipline's evaluation shall be complete.

12. To take steps better to serve the immediate region as a community college, giving consideration to certain needed associate of arts degrees.

B. The campus at Kansas City

1. To offer a broad range of undergraduate studies in the liberal arts. Many of these shall lead to the baccalaureate degree. In the various areas these studies may include:
   - Physical, Biological, and Mathematical Sciences
   - Biology
   - Chemistry
   - Computer Science
   - Geology
   - Social Sciences
   - Anthropology
   - Economics
   - Geography
   - Humanities
   - English
   - Foreign Languages
   - History

2. To be the University's center for general and professional studies in the performing and visual arts. This responsibility shall include all appropriate advanced degrees in these fields:
   - Art
   - Music
   - Theatre

3. In partnership with the St. Louis campus, to develop programs in Urban Studies. These may proceed to the doctoral level. A Committee on Urban Studies will advise the Academic Planning Council on the growth of this field of study.

4. To provide undergraduate and master's level offerings in business and public administration. In partnership with the St. Louis campus, to be the center for advanced graduate and professional work in these fields:
   - Accounting
   - Business Administration
   - Finance
   - Marketing
   - Public Administration

A Committee on this broad area will advise the Academic Planning Council.

5. To provide the basic undergraduate and master's level professional work in Education. Advanced graduate training in this area will be offered in collaboration with the Schools of
Education on the Columbia and St. Louis campuses. Details as to special assignments await the findings of the program evaluation now underway. A Committee on Professional Education will advise the Academic Planning Council on all developments in this area.

6. In partnership with the St. Louis campus, to be the University's center for graduate study in the Social Sciences. Eventually a Committee on the Social Sciences will advise the Academic Planning Council on development of this area. While the extent of these doctoral programs depends upon the approaching appraisals, the fields involved are:

   Economics  Political Psychology & Science Sociology

7. In partnership with the Columbia campus, to be the University's center for advanced scholarship and professional studies in the Health Sciences, Allied Health Professions, and the Biological Sciences. The extent of these programs awaits the results of current appraisals. In due course advisory committees on these program areas will be established by the Academic Planning Council.

8. To be the University's center for work in Pharmacy.

9. In partnership with the Columbia campus, to provide professional training in the field of law.

10. To offer selected programs to the master's level in the Humanities, the Mathematical Sciences, and the Physical Sciences. These programs shall be designed to comport with the related doctoral programs assigned to centers of graduate study. Carrying forward this concept shall depend upon the results of impending program appraisals.

C. The campus at Rolla

1. To be the University's center for advanced study in basic Engineering. Determination of this program's future range awaits the outcome of appraisals now underway. These appraisals shall also assist in the revised design of undergraduate programs in Engineering and Technology.

2. To offer the limited range of undergraduate studies in the liberal arts needed to enrich the opportunities for students drawn to UMR's specialized character. Among these, the following may offer the baccalaureate degree:

   Chemistry  Physics
   Computer Science  Statistics
   Geology  Mathematics

Supporting programs short of the baccalaureate level may be made available in these fields:

   English  Life Sciences
   Foreign Languages  Philosophy
   Politics  Social Sciences
   General Humanities  Speech
   History

3. In partnership with the St. Louis campus, to be the center for graduate studies in the Physical Sciences. The emphasis at UMR will be on applied phases of these disciplines. Eventually a Committee on the Physical Sciences will advise the Academic Planning Council on development of this area. UMR will participate with UMSL in maintaining a Graduate Center for Engineering and Physical Science on the St. Louis campus.

4. In partnership with the St. Louis campus, to be the center for graduate study in the Mathematical Sciences. The emphasis at UMR will be on applied phases of these disciplines. Here the scope of responsibility will become clear after program appraisals are completed. A Committee on the Mathematical Sciences will advise the Academic Planning Council on this area's development.

5. To be the University's center for graduate study in the Earth Sciences. This shall entail offerings through the doctoral level as program appraisals and general need may dictate.

6. To be a community college for the region, providing associate degree programs as feasible.

D. The St. Louis campus

1. To offer a broad range of undergraduate studies in the liberal arts. Many of these shall lead to the baccalaureate degree. In the various areas these studies may include:

   Physical, Biological, and Mathematical Sciences
   Biology  Mathematics
   Chemistry  Physics
   Computer Science  Statistics
   Geology

   Social Sciences
   Anthropology  Political Science
   Economics  Psychology
   Geography  Sociology

   Humanities
   English  History
   Fine Arts  Philosophy
   Foreign Languages  Speech
2. To be the University's center for training in the Social Work and Community Service professions. This responsibility shall be for all degrees, basic and advanced, which the evaluation of this area suggests are needed.

3. In partnership with the Kansas City campus, to develop programs in Urban Studies. These may proceed to the doctoral level. A Committee on Urban Studies will advise the Academic Planning Council on the growth of this field of study.

4. To provide undergraduate and master's level offerings in business and public administration. In partnership with the Kansas City campus, to be the center for graduate and professional work in these fields:
   - Accounting
   - Business Administration
   - Finance
   - Management
   - Marketing
   - Public Administration

A Committee on this broad area will advise the Academic Planning Council.

5. To provide the basic undergraduate and master's level professional work in Education. Advanced graduate training in this area will be offered in collaboration with the School of Education on the Columbia and Kansas City campuses. Details as to special assignments await the findings of the program evaluation now underway. A Committee on Professional Education will advise the Academic Planning Council on all developments in this area.

6. In partnership with the Kansas City campus, to be the University's center for graduate study in the Social Sciences. Eventually a Committee on the Social Sciences will advise the Academic Planning Council on development in this area. While the extent of these doctoral programs depends upon the approaching appraisals, the fields involved are:
   - Economics
   - Psychology
   - Political Science
   - Sociology

A special area of responsibility will be in the field of Administration of Justice.

7. In partnership with the Rolla campus, to be the University's center for graduate study in the Physical Sciences. The emphasis at UMSL will be on theoretical phases of these disciplines. Eventually a Committee on the Physical Sciences will advise the Academic Planning Council on development of this area. UMSL will participate with UMR in maintaining a Graduate Center for Engineering and Physical Science on the St. Louis campus.

8. In partnership with the Rolla campus, to be the University's center for graduate work in the Mathematical Sciences. The emphasis at UMSL will be on basic phases of these disciplines. Here the scope of responsibility should become clear after program appraisals are completed. A Committee on the Mathematical Sciences will advise the Academic Planning Council on this area's development.

9. To be the University's center for scholarship and service activity in International Studies.

10. To offer selected graduate programs to the master's level in the Humanities, the Biological Sciences, and the Allied Health professions. These programs shall be designed to comport with the related doctoral programs assigned to centers of graduate study. Carrying forward this concept shall depend upon the results of impending program appraisals.