

Additional information may be obtained from:

UM-St. Louis Admissions Office  
One University Boulevard  
St. Louis, Missouri 63121-4400  
(314) 516-5451  
<http://www.umsl.edu/>



University of Missouri-St. Louis

# Pre-Professional Programs

## General Information

Students at the University of Missouri-St. Louis may develop pre-professional study programs from the University's academic offerings in architecture, engineering, dentistry, journalism, law, medicine, optometry, or pharmacy. For some pre-professional programs, students may develop a two-year study program in preparation for transfer into a professional program in the junior year, or they may select a major field of study and related area courses which provide strong undergraduate preparation for graduate professional study.

Students should seek pre-professional advisors in their interest area early in their academic careers to ensure development of sound, comprehensive study programs which fulfill the admission requirements of the professional program to which they wish to apply.

**Pre-professional programs are not degree programs; therefore, for financial aid purposes, students should declare a major from among the degree programs offered by the University of Missouri-St. Louis in addition to their pre-professional program.**

The following information on pre-professional study at UM-St. Louis is provided to give students minimal guidelines and assistance in planning a program.

## PRE-ARCHITECTURE

The Department of Art and Art History sponsors the 3+4 Program for the School of Architecture at Washington University. A student who is accepted into the School of Architecture, Washington University, at the end of the junior year may graduate from UM-St. Louis after the satisfactory completion of the following first year of professional school upon meeting one or more of the following conditions:

- 1) The student has completed all general education requirements and all requirements for an Art History major and lacks only the total hours (electives) necessary for a degree (which are completed during the first year at Washington University).
- 2) A student who has not completed required courses for a degree must remedy the deficiency with courses taken at the University of Missouri-St. Louis within three years of entering the professional school. At the time of graduation, the student must remain in good standing in the professional school or have successfully graduated from professional school.

- 3) A student who has not completed all the courses required for the major may, if the Art History Department at UM-St. Louis agrees, substitute up to six hours of appropriate course work from the professional school.

The requirement that 24 of the last 30 hours of course work for a degree be taken at UM-St. Louis shall be waived when necessary for students graduating under this procedure. For more information on admission requirements, please contact the College of Arts and Sciences, 303 Lucas Hall, 314-516-5501.

## PRE-ENGINEERING

The Joint Undergraduate Engineering Program of the University of Missouri-St. Louis and Washington University was established in 1993. It allows UM-St. Louis to offer complete Bachelor of Science degree programs in Mechanical Engineering, Electrical Engineering, and Civil Engineering. All three programs are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). Students who enter the joint program take the pre-engineering half of their course work on the campus of UM-St. Louis. The remaining half of their degree programs, consisting of upper-level engineering courses and laboratories, is taken on the campus of Washington University and taught by Washington University engineering faculty members. The two campuses are separated by a driving time of about 15 minutes.

The UM-St. Louis pre-engineering program provides a solid base in mathematics, physics, chemistry, and introductory engineering subjects. Students completing the pre-engineering program will be well prepared for transferring to engineering schools throughout the United States including UM-Columbia, UM-Rolla, Washington University, and SIU-Edwardsville in addition to continuing their education and earning their engineering degrees here at UM-St. Louis.

## Admission Requirements

In addition to the general admission requirements, prospective undergraduate engineering and pre-engineering students may be required to take a mathematics placement test, given at UM-St. Louis, the semester before enrolling.

Although there is no required pattern of high school units for admission to the undergraduate engineering or

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pre-engineering programs, students are urged to complete at least four units of mathematics, including units in algebra (excluding general mathematics) and trigonometry. Calculus, if available, is strongly recommended.

The following indicates pre-engineering course work required for students planning to pursue a Bachelor of Science degree in engineering at UM-St. Louis through the joint program with Washington University.

### Science and Mathematics

Math 1800, Analytic Geometry and Calculus I  
Math 1900, Analytic Geometry and Calculus II  
Math 2000, Analytic Geometry and Calculus III  
Math 2020, Introduction to Differential Equations  
Chem 1111, Introductory Chemistry I  
Chem 1121, Introductory Chemistry II  
Physics 2111, Physics: Mechanics and Heat  
Physics 2112, Physics: Electricity, Magnetism, and Optics

### Introductory Engineering

Engineering 2310, Statics  
Engineering 2320, Dynamics

### Humanities, Social Sciences, and English Composition

English 1100, Freshman Composition  
Humanities Electives (Three Courses)  
Social Sciences Electives (Three Courses)

Students planning to earn a Bachelor of Science degree in engineering at UM-St. Louis should choose humanities and social sciences electives to meet both the UM-St. Louis General Education Requirements and the humanities and social sciences requirements of the Joint Undergraduate Engineering Program. In particular:

- A course in American history or government, or in Missouri history or government, must be included.
- The cultural diversity requirement must be fulfilled.
- A total of three Humanities and three Social Science courses are required. At least one credit hour must be in a course at the junior level or higher, taken at a four-year institution.

Please contact the UM-St. Louis Engineering Advisor at 314-516-6800 to ensure that the required Humanities and Social Sciences courses are selected.

### For Further Information

For information about undergraduate engineering and pre-engineering programs at UM-St. Louis, please contact the UM-St. Louis/Washington University Joint Undergraduate Engineering Program in 228 Benton Hall, 314-516-6800.

### PRE-JOURNALISM

Students wishing to pursue a journalism degree should review the entrance requirements of the schools they would like to attend. With respect to the School of Journalism at the University of Missouri-Columbia, students must complete the junior and senior year on that campus. Admission requirements include 60 acceptable semester hours that include the required courses listed below.

### Required Courses

The following studies are required for admission to the School of Journalism:

**English Composition:** English 1100 - Freshman Composition with a grade of B or higher. If a grade of C is received, the student must pass the Missouri College English Test on the UMC campus. Advanced Placement (AP) English Composition credit will be accepted for incoming freshman admitted to UMC beginning fall semester 2002.

**Math:** Students must complete College Algebra with a grade C-range or higher, or have a minimum ACT math score of 26, or SAT score of 600.

**Foreign Language:** Four years of high school work in one foreign language **or** 12-13 hours of college work in one foreign language.

**Biological, Mathematical, Physical Science:** Math 1310, Elementary Statistics (C-range grade) **plus** six hours from biological anthropology, biology, chemistry, astronomy, geology, physics, above college algebra level math or computer science\*. One course must include a lab. **Please note:** College Algebra is the prerequisite course for statistics at UMC and UM-St. Louis (\*Computer Science 1250, Introduction to Computing).

**Social Science:** Twelve hours are required. American history **or** American government; microeconomics; three hours in a behavioral science (anthropology, but not Anthropology 1005, psychology or sociology). **Note:** pre-strategic communications majors must complete both microeconomics and macroeconomics.

**Humanistic Studies:** Nine hours are required to include three hours in American or British literature, **plus** two courses from any of the following areas: history or appreciation of art or music, humanities, philosophy, religious studies, non-U.S. civilization or classical studies, history or appreciation of communication, film or theatre.

**In addition, word processing skills are required (40 words per minute). A minimum TOEFL score of 600 is required for students whose native language is not English.**

Nontransferable courses at the School of Journalism include: basic military science, basic physical education, word processing or computer applications, typing or practical arts/vocational technical education courses, photography, public relations, advertising, journalism or mass communication, orientation, professional skills, college preparatory, and no more than three hours maximum of applied music, dance, acting, or studio art.

Students are required to take four journalism courses (minimum C-range grades) at UMC prior to admission to the school: J1010 - Careers in Journalism, J1100 - Principles American Journalism, J2100 - News, and J2000, Cross Culture Journalism. The English composition requirement must be satisfied prior to enrollment in J2100. Completion of 15 hours and a 2.75 GPA is required for J1100. A minimum 2.8 GPA is required for J2100 and J2000.

The School computes the grade point average for transfer students based on courses accepted toward admission until a Mizzou (University of Missouri-Columbia) GPA is established. The school uses the Mizzou GPA for enrollment in the preliminary journalism courses and for acceptance to the emphasis areas.

**Admission is by emphasis area.** Emphasis areas include Convergence Journalism, Magazine Journalism, Newspaper Journalism, Radio-TV Journalism, Strategic Communications, and Photojournalism.

The School accepts credit through the College-Level Examination Program (CLEP – subject exams only), Advanced Placement Program (AP), and the International Baccalaureate (IB). Regulations apply.

**Credit should be referred for review.** Please send official transcript to: University of Missouri-Columbia, School of Journalism, Admissions, 230 Jesse Hall, Columbia, MO 65211.

For advisement and information, contact the College of Arts and Sciences, 303 Lucas Hall, 314-516-5501.

## PRE-LAW

Students planning to attend law school must pursue an undergraduate degree of their choice. There is no such thing as a pre-law major. Law schools encourage students to pursue a course of study that includes a broad liberal arts background. The pre-law advisor will assist students in choosing courses that will enhance their analytical and writing skills.

English language and literature courses are virtually indispensable. An awareness of the institutional processes of government obtained through study in political science is needed. Since law is inseparable from historical experience, an acquaintance with American history is important. Students should acquire a knowledge of macro- and microeconomics. Statistics, accounting, and computer science are valuable in understanding special legal subjects and the practice of law. Other recommended courses include **formal logic**, public speaking, general psychology, introduction to sociology, ethics, and theories of justice, and courses that promote cultural awareness. **Note: formal logic should be taken in the second semester of the sophomore year before preparation for the Law School Admission Test (LSAT).**

The University of Missouri has law schools at Columbia and Kansas City. University of Missouri-St. Louis students will find assistance in planning an undergraduate program, preparing for the LSAT, and applying to law school in the College of Arts and Sciences, 303 Lucas Hall, 314-516-5501. Students should contact this office early in their undergraduate studies.

## PRE-HEALTH SCIENCES

Students preparing for application to medical, dental, or veterinary medicine schools should pursue B.A. or B.S. degrees with majors in the disciplines of their choice, but should take whatever additional courses may be necessary as prerequisites for admission to the professional school. More information pertaining to optometry and pharmacy follow in the next sections.

*Since the admission requirements vary, students are urged to consult the catalogs of the schools to which they intend to apply.* Admission information by school is available in each of the following references (phone numbers are for ordering publications):

### ***Medical School Admission Requirements (United States and Canada)\*\****

Phone: 1-202-828-0416; Website: [www.aamc.org](http://www.aamc.org)

### ***American Dental Education Association Official Guide to Dental Schools***

Phone: 1-202-289-7201; Website: [www.adea.org/student-applicant/default.htm](http://www.adea.org/student-applicant/default.htm)

### ***Schools and Colleges of Optometry Admission Requirements***

Phone: 1-301-231-5944; Website: [www.opted.org](http://www.opted.org)

### ***Pharmacy School Admission Requirements***

Phone: 1-703-739-2330; Website: [www.aacp.org](http://www.aacp.org)

### ***Veterinary Medical School Admission Requirements in the United States and Canada***

Phone: 1-202-371-9195; Website: [www.aavmc.org/](http://www.aavmc.org/)

\*\* A copy of the *MSAR* is also available at the reference desk of the Thomas Jefferson Library.

## Recommended Courses (Pre-Med, Pre-Dental, Pre-Vet)

**Biology:** Biology 1811, Introductory Biology: From Molecules to Organisms; Biology 1821, Introductory Biology: Organisms and the Environment; Biology 2012, Genetics; and additional courses in molecular and/or cell biology.

**Chemistry:** Chemistry 1111, Introductory Chemistry I; Chemistry 1121, Introductory Chemistry II; Chemistry 2612, Organic Chemistry I; Chemistry 2622, Organic Chemistry II; Chemistry 2633, Organic Chemistry Laboratory; and additional courses in organic chemistry and quantitative analysis.

**Mathematics:** Students should take courses at least through calculus, as appropriate for the major degree, e.g. Math 1800, Analytical Geometry and Calculus I or Math 1100, Basic Calculus. (Biology majors may take Math 1800 or Math 1100. Chemistry and Physics majors need Math 1800 and additional math courses. Consult with the Pre-Health Sciences advisor.)

**Physics:** Eight credit hours or as appropriate for the degree chosen, e.g., Physics 1011 & 1012 Basic Physics, or Physics 2111, Physics: Mechanics & Heat & Physics 2112, Physics: Electricity, Magnetism, and Optics. (Consult with the Pre-Health Sciences Advisor.)

Successful completion of these recommended courses also helps students prepare for required standardized exams (listed below).

Most accredited health science schools require or strongly recommend a baccalaureate degree. Since applications to health science schools are not complete until the math and science requirements are met, students should finish these courses by the end of the junior year. **To complete these requirements in time, Chemistry 1111 and 1121, Introductory Chemistry I and II, should be taken during the freshman year.**

In addition, students are required to take the appropriate national standardized examination before or during the junior year as is appropriate for the exam: the Medical College Admission Test (MCAT) for pre-med students; the Medical College Admission Test or Graduate Record Exam (GRE) for pre-vet students; the Dental Aptitude Test (DAT) for pre-dental students; the Optometry Admission Test (OAT) for pre-optometry students; and the Pharmacy College Admission Test (PCAT) for pre-pharmacy students (if required).

Each year, the number of applicants to health profession schools exceeds the number of available places. Students, therefore, are encouraged to have alternative plans should they not gain entrance. Nursing, laboratory technology and physical therapy are some alternative fields to consider. For further information, testing dates, or pre-professional advising, contact the College of Arts and Sciences, 303 Lucas Hall, 314-516-5501.

## PRE-OPTOMETRY

The University of Missouri-St. Louis offers a four-year program of study leading to the doctor of optometry degree. This professional degree is administered by the College of Optometry. It is one of only 16 schools of optometry nationwide and the only one in the state of Missouri.

Because the University offers the doctor of optometry degree, it is an ideal institution for pre-optometry education. There are three distinct programs available to UM-St. Louis pre-optometry students:

### Pre-professional 3+4 Program

The Department of Biology and the Department of Physics & Astronomy sponsor 3+4 Programs for the UM-St. Louis College of Optometry. In these programs, students may be admitted to the College of Optometry after completing three years (**90 semester hours**) of study in their respective majors (and successful completion of the Optometry Admission Test - OAT). Note: 3+4 students must take Math 1800, Analytical Geometry and Calculus I in their first semester to complete their undergraduate major and pre-optometry requirements in three years. The undergraduate degree is granted when students satisfactorily complete the first year of optometry school. One or more of the following conditions must be met in order to qualify for the undergraduate degree.

- 1) All general education requirements and all requirements for the biology or physics major, except electives, must be completed.
- 2) Any deficiency in required courses must be remedied with courses taken at UM-St. Louis within three years after entering the College of Optometry.
- 3) Up to six hours from the College of Optometry may be substituted for the undergraduate degree in biology, with approval of the Department of Biology. For more information contact the Department of Biology, 314-516-6200.
- 4) 12 hours in optometry are required to complete the B.S. in Physics degree. For more information, contact the Department of Physics & Astronomy, 314-516-5931.

### The Scholars Program

The Pierre Laclède Honors College and the College of Optometry offer the Scholars Program; this program allows a student to complete both the undergraduate and doctor of optometry degrees in seven years. To qualify for this program, a student must be a senior in high school; score a minimum composite of 27 on the ACT; and be accepted to the UM-St. Louis Pierre Laclède Honors College program. For more information about the Scholars Program, contact the Pierre Laclède Honors College, 314-516-6870.

### Admission Course Requirements for UM-St. Louis College of Optometry

Two semesters **English**, three semesters **Biology with labs** (one semester Microbiology with lab, and one additional semester with lab in Biochemistry, Anatomy, or Physiology are recommended), two semesters **Physics with labs**, two semesters **General Chemistry with labs**, one semester **Organic Chemistry with lab**, one semester **Calculus** (College Algebra and Trig are prerequisites), one semester **Statistics**, two semesters **Psychology**, two semesters **Social and Behavioral Sciences**, and two semesters of **Liberal Arts** courses. These courses must be taken with letter grades, not pass/fail or satisfactory/unsatisfactory. For additional information on the Optometry Admission Test (OAT) and application procedures, please contact the College of Optometry, 314-516-6030.

### PRE-PHARMACY

In general, a pharmacy program may consist of 1-3 years of pre-professional study followed by 4-5 years in a professional

program. Some institutions, however, offer the entire program at the pharmacy college or school. *Since entrance requirements vary, students should consult the catalog and/or web site of the college or school to which they intend to apply.*

Missouri has two pharmacy schools: St. Louis College of Pharmacy, and University of Missouri-Kansas City School of Pharmacy. Beginning Fall 2005, the metropolitan area also includes Southern Illinois University Edwardsville School of Pharmacy. Internet links for these and other pharmacy programs in the United States, Canada, and abroad can be found at the web site for the American Association of Pharmacy Colleges, [www.aacp.org](http://www.aacp.org).

Before taking any pre-pharmacy courses, students should seek advisement in the College of Arts and Sciences, 303 Lucas Hall. It is important that students take the correct courses for the pharmacy schools they want to attend. *Generally*, admission requirements in science may include *some or all* of the courses listed below (*and possibly other courses*):

Biology 1131, Human Physiology and Anatomy I  
Biology 1141, Human Physiology and Anatomy II  
Biology 1811, Introductory Biology: From Molecules to Organisms  
Biology 1821, Introductory Biology: Organisms and the Environment  
Chemistry 1111, Introductory Chemistry I  
Chemistry 1121, Introductory Chemistry II  
Chemistry 2612, Organic Chemistry I  
Chemistry 2622, Organic Chemistry II  
Chemistry 2633, Organic Chemistry Laboratory  
Math 1800, Analytical Geometry and Calculus I  
Physics 1011, Basic Physics  
Physics 1012, Basic Physics

Usually, pre-pharmacy requirements also include courses in English composition, humanities, and social and behavioral sciences. The specific pharmacy school or college determines these requirements. In addition, many pharmacy institutions require applicants to take the Pharmacy College Admission Test (PCAT). Detailed information about the PCAT is available online at [www.pcatweb.info](http://www.pcatweb.info). For additional information about application deadlines and procedures, gpa requirements, and letters of recommendation, students should consult the catalogs and/or web sites for the schools they want to attend.

Pre-Pharmacy advising and information is available in the College of Arts and Sciences, 303 Lucas Hall, 314-516-5501.

### Additional information may be obtained from:

UM-St. Louis Admissions Office  
One University Boulevard  
St. Louis, Missouri 63121-4400  
(314) 516-5451  
*Toll-Free in MO and IL 618 area code:*  
1-888-GO-2-UMSL  
Career Services: (314) 516-5111  
<http://www.umsl.edu/>

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