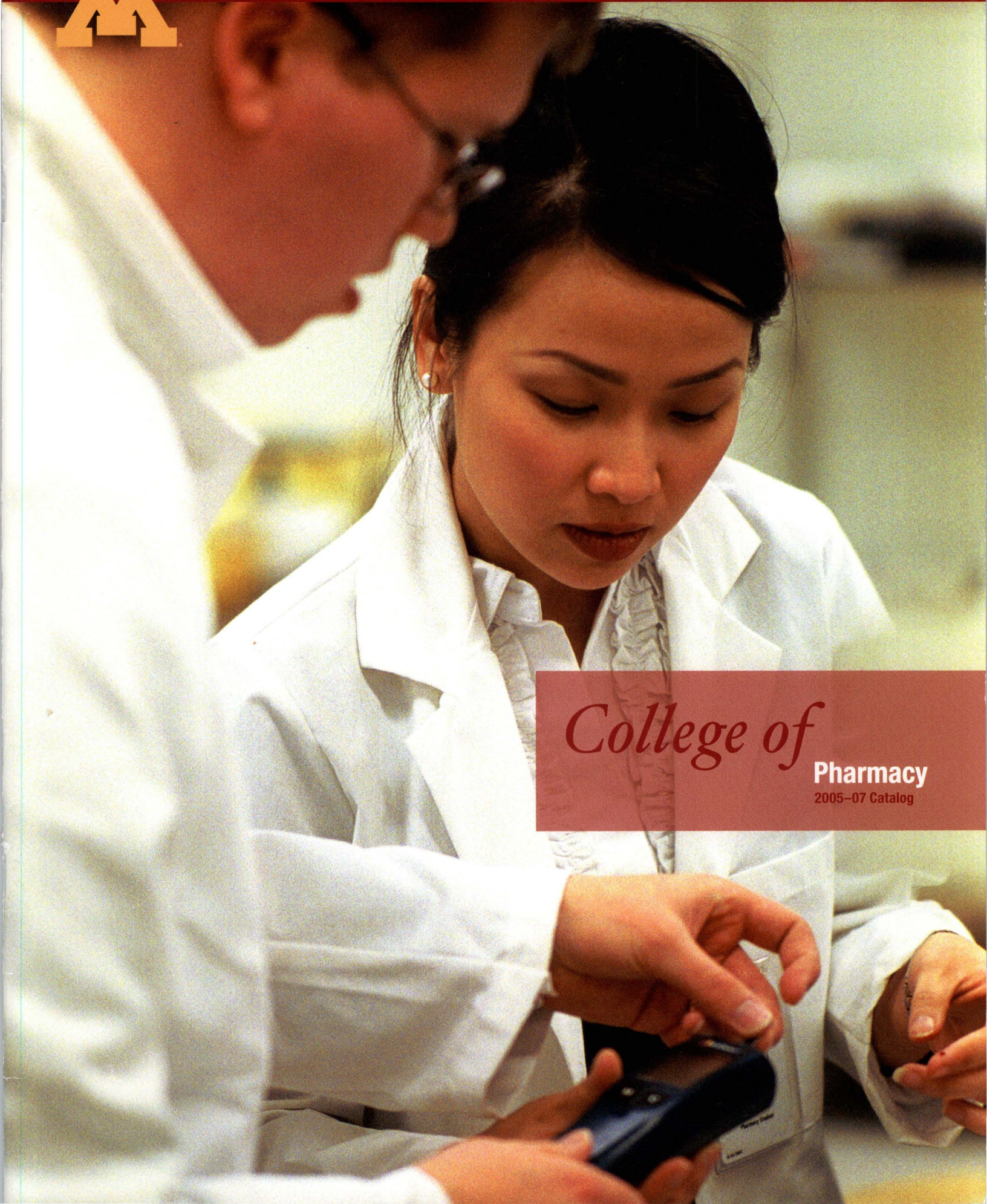




UNIVERSITY OF MINNESOTA

*College of*  
**Pharmacy**  
2005-07 Catalog



# College of Pharmacy

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## College of Pharmacy Mission

The College of Pharmacy educates pharmacy practitioners to meet the pharmaceutical care needs of the people of Minnesota and the rest of society. The college is committed to improving human health through the development of new drugs and drug delivery systems, optimization of drug use, and improvement of pharmaceutical services. It is committed to advancing pharmaceutical technology to strengthen Minnesota's economy.

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## University of Minnesota Mission Statement

The University of Minnesota, founded in the belief that all people are enriched by understanding, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation, and the world.

The University's mission, carried out on multiple campuses and throughout the state, is threefold:

**Research and Discovery**—Generate and preserve knowledge, understanding, and creativity by conducting high-quality research, scholarship, and artistic activity that benefit students, scholars, and communities across the state, the nation, and the world.

**Teaching and Learning**—Share that knowledge, understanding, and creativity by providing a broad range of educational programs in a strong and diverse community of learners and teachers, and prepare graduate, professional, and undergraduate students, as well as non-degree-seeking students interested in continuing education and lifelong learning, for active roles in a multiracial and multicultural world.

**Outreach and Public Service**—Extend, apply, and exchange knowledge between the University and society by applying scholarly expertise to community problems, by helping organizations and individuals respond to their changing environments, and by making the knowledge and resources created and preserved at the University accessible to the citizens of the state, the nation, and the world.

In all of its activities, the University strives to sustain an open exchange of ideas in an environment that embodies the values of academic freedom, responsibility, integrity, and cooperation; that provides an atmosphere of mutual respect, free from racism, sexism, and other forms of prejudice and intolerance; that assists individuals, institutions, and communities in responding to a continuously changing world; that is conscious of and responsive to the needs of the many communities it is committed to serving; that creates and supports partnerships within the University, with other educational systems and institutions, and with communities to achieve common goals; and that inspires, sets high expectations for, and empowers the individuals within its community.

## Overview

The College of Pharmacy at the University of Minnesota is one of the outstanding pharmacy education and research institutions in the world. *U.S. News and World Report* ranks it as the fourth best college of pharmacy in the United States. Graduates of the four-year Doctor of Pharmacy (Pharm.D.) program enter the profession as well qualified, highly sought-after pharmacists.

The college's programs are supported by centers of excellence in diverse areas of pharmacy, such as geriatrics, pharmacy management and economics, rural pharmacy, pharmaceutical care, and drug design and delivery. The teaching, research, and service activities of the 80 full-time faculty members and hundreds of volunteer faculty are focused in five departments: medicinal chemistry, pharmaceuticals, pharmaceutical care and health systems, experimental and clinical pharmacology, and pharmacy practice and pharmaceutical sciences (Duluth).

The Twin Cities campus college is housed in the University of Minnesota Academic Health Center, a complex designed specifically for health education, research, and practice. Pharmacy students have access to modern classrooms, laboratories, and more than 350,000 volumes of pharmacy resource materials.

At the Duluth campus, students have access to University resources including new purpose-built classrooms and labs for the College of Pharmacy. Students in Duluth have unique opportunities to experience rural/small town pharmacy practice and inter-professional activities.

*The college is fully accredited by the American Council on Pharmaceutical Education, 311 W. Superior Street, Chicago, IL 60610 (312-664-3575).*

## History

Throughout the college's history, its programs have evolved to meet the needs of the pharmacy profession. In 1892 the college initiated a program consisting of two years of professional studies leading to the doctor of pharmacy degree. To accommodate new knowledge and technology, the period of formal instruction was extended to a four-year baccalaureate degree (B.S.) in 1927, and increased to five years in 1954. A clinical component was added to the B.S. program in 1967; a postbaccalaureate doctor of pharmacy (Pharm.D.) program was established in 1971. The college added a six-year Pharm.D. program in 1981 and, in 1987, revised the professional education curricula and introduced career-tracking options. In 1995 the college introduced a new Pharm.D. program and phased out the former Pharm.D. and B.S. programs. The college extended its program to the Duluth campus in fall 2003, with an eventual enrollment of 200 Pharm.D. students on the campus.

## Pharmacy Licensure

Graduates of the Pharm.D. program are eligible to take the state licensure examination to practice pharmacy. For more information about licensure, call the Minnesota Board of Pharmacy at 612-617-2201.

## Programs of Study

**Doctor of Pharmacy (Pharm.D.) Program**—The Pharm.D. program prepares students to identify, resolve, and prevent drug-related problems. Students learn to provide patient care to achieve positive drug therapy outcomes that improve the quality of a patient's life. Before enrolling in the college, students complete prepharmacy coursework at an accredited college. The required coursework listed in the curricula section of this catalog is offered on a full-time day school basis at both the Twin Cities and Duluth campuses.

**Pharmacy Rural Education Program**—The Pharmacy Rural Education Program (PREP) attracts and retains pharmacists in rural Minnesota. By participating in PREP, Pharm.D. students gain clinical experience in rural communities either through pharmacy clerkships or at interdisciplinary sites offered through the Rural Health School. Postdoctoral opportunities in PREP focus on developing new practice models for pharmacists in rural family practice settings.

**Honors Program**—The honors program provides Pharm.D. students with opportunities to interact with faculty, develop specialized skills, learn about research, and enhance their professional development. Specific activities, called honors options, include special projects and honors courses. Special projects are defined by a student and faculty member. They may be laboratory research projects, directed research readings, term papers or seminar preparation on research topics, community service projects, leadership projects, or other appropriate activities. There is no financial remuneration for honors options.

Honors courses available in the college are designated by "Honors Course" following the course number. These advanced courses may be of special interest to honors students.

Admission to the honors program is granted to students in the professional program who self-identify and expect to graduate with a GPA of 3.50 or higher. Graduating students who have completed at least five honors options, including at least one honors project, and earned a qualifying GPA, graduate with the honors designation of cum laude (overall and required GPA of 3.50 to 3.65), magna cum laude (overall and required GPA of 3.66 to 3.74), or summa cum laude (overall and required GPA of 3.75 to 4.00) based on at least 60 credits taken at the College of Pharmacy. A memo on the student's transcript indicates completion of honors options in the semester in which the option was completed.



### **Postgraduate Fellowship and Residency Programs**—

The postgraduate fellowship programs in pharmacy practice prepare clinical scientists to become leaders in drug research. The residency programs provide advanced training in general pharmacy practice, pharmaceutical care, and specialty practices such as cardiology, nephrology, infectious disease, transplant, and pediatrics.

Candidates for fellowships and most residencies must have a Pharm.D., M.S., or Ph.D. and equivalent clinical experience; be eligible for licensure to practice pharmacy in Minnesota; and meet other qualifications specific to the program for which application is made. Some residencies are available to candidates who have a B.S. in pharmacy. For information call 612-625-1900.

**Graduate Programs**—College of Pharmacy graduate programs for the M.S. and Ph.D. degrees are offered through the Graduate School in medicinal chemistry, pharmaceuticals, and social, administrative, and clinical pharmacy. Details about these programs are in the *Graduate School Catalog* or by calling 612-624-9919 for medicinal chemistry, 612-624-5151 for pharmaceuticals, or 612-624-2973 for social, administrative, and clinical pharmacy.

**Continuing Pharmacy Education**—The College of Pharmacy offers high-quality continuing education programs for pharmacists in the Upper Midwest who provide services to patients and health care organizations. These programs are offered through various media: live programs, correspondence courses, home-study videotapes, teleconferencing, computer-assisted instruction, and Web-based instruction. The college offers noncredit as well as University-credit programs. For more information, call the Office of Outreach Education at 612-625-8616 or visit [www.ce.pharmacy.umn.edu](http://www.ce.pharmacy.umn.edu).

## Prepharmacy Advising

The college's Office of Student Services provides prepharmacy advising on both campuses and answers questions about admission requirements and application procedures for the Pharm.D. program. Student services staff can also refer students to prepharmacy advisers in all Minnesota and nearby Wisconsin colleges. Students may contact the Office of Student Services at two locations:

**Twin Cities**—College of Pharmacy–Twin Cities, Office of Student Services, University of Minnesota, 5-110 Weaver-Densford Hall, 308 Harvard Street S.E., Minneapolis, MN 55455, 612-624-9490, pharmacy@umn.edu.

**Duluth**—College of Pharmacy–Duluth, 386 Kirby Plaza, 1208 Kirby Drive, Duluth, MN 55812, 218-726-6000, copd@d.umn.edu

## Admission Requirements

**Doctor of Pharmacy Program**—Candidates must have a PharmCAS GPA of at least 3.00 or a GPA of 3.20 over the last 60 semester credits. The required prepharmacy courses may be taken at any regionally accredited U.S. college. If these or any other postsecondary courses are taken outside of the United States and Canada, then the college must receive an official course-by-course evaluation from an accredited U.S. evaluation service. Pre-pharmacy courses must be taken A–F and completed with a grade of C or better before enrollment.

In addition to required prepharmacy courses, students must complete at least 30 semester (45 quarter) credits of academic general education (non-science, non-mathematics, non-professional/vocational, non-physical education) courses. Prepharmacy credits earned in behavioral sciences, English composition, economics, and public speaking apply toward the general education requirement. It is recommended that this requirement be completed before entering. General education courses that do not fulfill prepharmacy requirements may be taken S–N (pass/fail).

**Transfer Students**—Students wishing to transfer from another pharmacy college must fulfill all Pharm.D. admission requirements. Transfer or post-baccalaureate students are admitted if space is available. Professional courses completed at another college of pharmacy are evaluated for equivalency to University of Minnesota College of Pharmacy coursework. Transfer students must spend at least one year at the University before qualifying for a degree. Transfer students do not apply via PharmCAS but are required to fill out a paper application available directly from the college.

### Prepharmacy Course Requirements

(Each course must be for at least 3 semester credits.)

#### Biology

General biology, including lab ..... 1 course  
Microbiology, including lab ..... 1 course  
Human anatomy, including lab ..... 1 course  
(If anatomy is combined with physiology, the entire anatomy and physiology sequence must be completed.)

#### Calculus

Semester—calculus I ..... 1 course

#### Chemistry

General chemistry, including labs ..... sufficient for organic chemistry  
Organic chemistry, including labs ..... 2 semesters or 3 quarters

#### Physics

General physics, including labs ..... entire intro sequence

#### Behavioral Sciences

Courses dealing with human behavior in society (psychology or sociology courses) ..... 2 courses

English Composition ..... 2 courses

Economics ..... 1 course

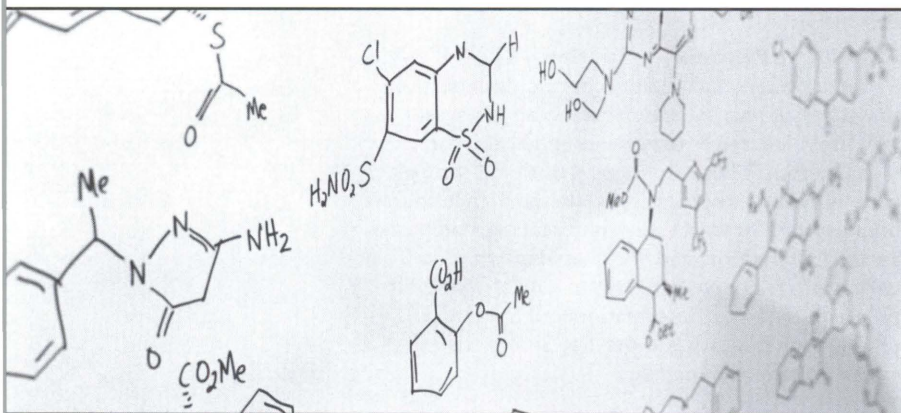
Public Speaking ..... 1 course

## Application Procedures

Applicants complete one application for entry into both the Twin Cities and Duluth campuses and indicate their campus choice on the application. Application materials are available from PharmCAS ([www.pharmcas.org](http://www.pharmcas.org)). Supplemental applications are available from the college's Web site, [www.pharmacy.umn.edu/pharmd](http://www.pharmacy.umn.edu/pharmd). Applications must be received by February 1. The highest ranking applicants according to admissions criteria will be invited to interview with a faculty member. Students are admitted into the college in the fall semester only.

### Early Decision Program

Applicants who submit all required documents by September 1 and who have an overall GPA of at least 3.60 are considered for early admission and notified of a decision in November. If admitted, a \$500 nonrefundable tuition deposit to hold a position in the college is due in full by December 1. Students in the early decision program must have at least 75 percent of the college's prerequisites complete at the time



of application. During this phase, applicants cannot apply to another school of pharmacy associated with PharmCAS. Applicants who are accepted are obliged to accept the offer. Applicants not accepted for early admission may be considered for general admission and may apply to other colleges of pharmacy.

### English Language Requirements

The TOEFL is required of all international applicants whose native language is not English, except those who have completed 16 semester credits (within the past 24 months) in residence as a full-time student at a recognized U.S. institution of higher learning before entering the University. See [www.etc.org/toefl](http://www.etc.org/toefl) or call 609-771-7760. An official report of the score should be sent the PharmCAS, whose TOEFL institutional code is 8246.

### Evaluation of Applicants

The Admissions Committee uses the following criteria to evaluate all applicants:

- Academic achievement— GPA, PCAT, course selection, course load (bachelor's degree preferred)
- Work experience
- Three recommendations— from a health service provider, employer, and another of applicant's choice (must be professional or academic, not personal)
- Community service, extracurricular activities, leadership examples
- Understanding of and motivation for profession of pharmacy
- Application essays and on-campus writing exercise
- On-campus interview
- Diversity factors including but not limited to academic background, professional background, race/ethnicity, geographic diversity, first generation college student, challenging or disadvantaged background, and ability in multiple languages

### Tuition Deposit

Applicants who are admitted pay a \$500 nonrefundable tuition deposit to hold a place in the college. The deposit, along with a signed declaration of intent, is due in full within three weeks of admission and is applied to the fall semester tuition. The deposit is not refunded to applicants who do not enroll in the year admitted; nor is it transferable to another application cycle.

## Background Study Requirement

Minnesota law requires that any student who provides services that involve unsupervised direct contact with patients and residents at hospitals, nursing homes, and other health care facilities licensed by the Minnesota Department of Health undergo a background study conducted by the state. The study covers civil agency

findings related to maltreatment of children or vulnerable adults and a range of criminal convictions. A student who is disqualified from having direct patient contact as a result of the background study and whose disqualification is not set aside by the Commissioner of Health, may not participate in a clinical placement in these licensed health care facilities. Failure to pass the background study is grounds for dismissal from the doctor of pharmacy program.



### Required Documents

Application submitted to PharmCAS ([www.pharmcas.org](http://www.pharmcas.org)), including

- Application (available at [www.pharmcas.org](http://www.pharmcas.org)) and fee submitted to PharmCAS
- Official transcript from each college attended (submitted to PharmCAS)
- Pharmacy College Admissions Test (PCAT) score report sent to PharmCAS (code 104) and University of Minnesota, Twin Cities (code 031) (Do not send scores to Duluth, even if you apply to Duluth campus.)
- TOEFL score (if required) submitted to PharmCAS
- Three recommendation forms (available from and) submitted to PharmCAS
- College of Pharmacy Supplemental Application form and \$75 nonrefundable application processing fee
- University of Minnesota Financial Certification Statement (if international applicant)



**Residency and Reciprocity**— Because the University is a state institution, Minnesota residents pay lower tuition than nonresidents. To qualify for resident status, students must permanently reside in Minnesota and have been physically and continuously present in the state for at least one calendar year before the first day of class attendance at the University and must, during this one-year period, have resided in Minnesota for some reason other than primarily to attend classes at a postsecondary education institution. The University has reciprocity agreements with South Dakota, Wisconsin, and Manitoba. For more information, contact Residency and Reciprocity Office, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-625-6330) or Office of the Registrar and Financial Aid, Student Assistance Center, 21 Solon Campus Center, 1117 University Drive, Duluth, MN 55812 (218-726-8000) or the residency office on your campus.

### **Financial Aid**

Pharmacy students finance their education from a combination of sources, including personal or family funds, grants, scholarships, loans, and employment. Applications for federal, state, and institutional loans and grants are administered by the financial aid office on each campus. Students file a Free Application for Federal Student Aid (FAFSA) with the financial aid office on the campus of their enrollment. The FAFSA is available at [www.fafsa.ed.gov](http://www.fafsa.ed.gov) and at financial aid offices.

Applications should be filed as soon as possible after January 1. (Students may apply before they are admitted.) **Twin Cities:** Office of Student Finance, 210 Fraser Hall, 106 Pleasant St. S.E., Minneapolis, MN 55455 (612-624-1111), [www.onestop.umn.edu](http://www.onestop.umn.edu). **Duluth:** Office of the Registrar and Financial Aid, Student Assistance Center, 21 Solon Campus Center, 1117 University Drive, Duluth, MN 55812 (218-726-8000), [umdhelp@d.umn.edu](mailto:umdhelp@d.umn.edu), [www.d.umn.edu/fareg](http://www.d.umn.edu/fareg).

For questions about financial aid for international students, call International Student and Scholar Services (612-624-7100).

## **Costs and Financial Aid**

### **Tuition, Fees, and Living Expenses**

For information on Twin Cities tuition and fees visit [www.onestop.umn.edu](http://www.onestop.umn.edu); for Duluth visit [www.d.umn.edu/fareg](http://www.d.umn.edu/fareg). Expenses for room and board, laundry and clothing, required health insurance, recreation, travel, and other personal expenses vary depending on whether a student lives at home, in a residence hall, or in off-campus housing.

As part of their required courses, students complete advanced pharmacy practice experiences at community or hospital sites throughout the state. Students may be required to live in locations other than Duluth or the Twin Cities during fourth-year rotations and are responsible for living and travel arrangements and expenses.

### **College of Pharmacy Scholarships**

Full-time students (on either campus) may apply for College of Pharmacy scholarships that range from \$500 to \$3,000. To be considered, students should have a complete financial aid application on file in the financial aid office on their campus of enrollment. Applications are available from the Office of Student Services. The college's Student Affairs Committee selects scholarship recipients. Scholarships are disbursed by the financial aid office on each campus. If a fully funded student receives a scholarship, other forms of assistance are affected. Scholarships include the following:

*Robert W. Anderson Memorial Scholarship*

*Ben M. Benson Scholarship*

*Sidney B. Benson Memorial Scholarship*— For a deserving pharmacy student.

*Charles A. Bowman Scholarship*—For a 3rd year pharmacy student with an interest in rural pharmacy.

*Edward A. Brecht Scholarship*—For Minnesota students with an interest in community pharmacy.

*Harold H. Carpenter Memorial Scholarship*—Based on interest and outstanding achievement in rural pharmacy.

*Benjamin M. Coben Memorial Scholarship*—Based on financial need and academic achievement.

*Leslie and Carolyn Collins Scholarship*—For a deserving pharmacy student.

*College Board Scholarships*—For pharmacy students who demonstrate financial need.

*College Board Experiential Scholarships*—For Pharm.D. IV students who are enrolled in experiential courses outside the Twin Cities area and demonstrate financial need.

*Community and Rural Practice for Students Scholarship*

*Frank E. DiGangi Scholarship*—For pharmacy students who have demonstrated leadership and professional promise.

*Frank Digangi Kappa Psi Scholarship*—For Kappa Psi members, based on financial need, activity in the Epsilon chapter of Kappa Psi, and participation in community activities. In honor of Dr. DiGangi's service to the fraternity.

*Tom and Mary Dinndorf Scholarship*

*Dohmen Distribution Partners Pharmacy Scholarship*

*Glen and Lucy Einess Scholarship*—For a 3rd or 4th year student with financial need.

*Keith K. Keller Memorial Scholarship*—Based on financial need and interest in community pharmacy.

*Cecil A. Krelitz Memorial Scholarships*—For Pharm. D. I students from Minnesota who plan to practice community pharmacy.

*Abbie N. Larson Memorial Scholarships*—For students from Minnesota. Based on academic achievement and financial need.

*Sam Lavine Memorial Scholarship*—Based on financial need and demonstrated interest in community pharmacy.

*Sarah Lavintman Mark Scholarship*—For a Pharm.D. IV student interested in hospital pharmacy.

*Claude A. Matber Memorial Scholarships*—For students from Eveleth, Minnesota.

*Samuel W. Melendy Memorial Scholarships*—For the top scholars, based on academic performance the preceding year.

*Samuel W. Melendy Research Scholarships*—For students to conduct research projects. Based on scholastic performance and potential of the applicants. Award includes a summer stipend and funding for the following two semesters.

*MSHP Scholarship*—For a student with a sincere interest in health-system pharmacy.

*Fred Multaler Memorial Scholarship*—For a student from Minnesota. Based on financial need.

*NACDS Education Scholarship*—For a deserving pharmacy student.

*Vivian Nnacho Scholarship*—For an international student with financial need who is ineligible for U.S. sponsored financial aid.

*Dale and Ione Olson Family Scholarship*—For a deserving pharmacy student.

*Paddock Laboratories Scholarship*—Based on financial need. Preference to students who are single parents or from single-parent families.

*William M. and Mildred E. Peters Academic Excellence Scholarships*—Based on prepharmacy GPA.

*William M. and Mildred E. Peters Achievement Scholarships*—Based on financial need and extracurricular activities.

*William M. and Mildred E. Peters Rural Scholarships*—For students from rural Minnesota. Based on scholastic ability, extracurricular activities, and financial need. Recipients retain the scholarship until graduation as long as satisfactory academic progress is achieved.

*Pharmacy Alumni Society Scholarship*—For a deserving pharmacy student.

*Harold W. Pratt Memorial Scholarship*—For a deserving pharmacy student.

*James J. Remes Scholarship*—For a deserving pharmacy student.

*Max and Rose Sadoff Memorial Scholarship*—Based on financial need and demonstrated interest in pharmacy law or ethics.

*SbopKo Scholarship*—For a deserving pharmacy student.

*Bert Supplee Memorial Scholarship*—Based on academic performance or involvement in extracurricular activities or community service.

*Target Scholarship*—Based on involvement in extracurricular activities or community service.

*Virgil A. Vergin Scholarship*

*Walgreens Scholarship*—For a deserving pharmacy student.

*Wal-Mart Pharmacy Scholarship*—For a Pharm.D. II student who demonstrates interest in community pharmacy, scholastic excellence, leadership, and financial need.

*F. J. Wulling Scholarship*—For a deserving pharmacy student.



## Student Life

### Housing

**Twin Cities:** Housing and Residential Life Office assists students with on- or off-campus needs. Visit [www.housing.umn.edu](http://www.housing.umn.edu) or call 612-624-2994. **Duluth:** Off-campus housing listings are available at [www.d.umn.edu/kirby/housing](http://www.d.umn.edu/kirby/housing); for on-campus housing, call Housing and Residence Life, 218-726-8178.

### Activities

Pharmacy students have opportunities for valuable experience and personal growth through activities outside the classroom. Students are encouraged to take an active part in a variety of student groups.

**College Board**—The Pharmacy College Board is the student government body. It acts as the students' representative and liaison and sponsors many all-college activities. Its purpose is to advance students' interest in the college through active student participation. It is composed of class representatives and leaders of all student organizations in the college.

**Minnesota Pharmacy Student Alliance**—The alliance promotes the professional needs of students at the local, state, regional, and national levels. It is actively involved in educational activities and legislative matters affecting the profession at the state and national levels.



**Professional Societies**—Three professional societies are active in the college: Kappa Epsilon, Kappa Psi, and Phi Delta Chi. The groups sponsor activities involving students, the college, the profession, and the public.

**Honor Society**—Rho Chi, the national honor society of pharmacy, is represented at the University of Minnesota by the Mu Chapter. During their second professional year, eligible students may be elected to membership by society members. Election to the society is based on scholarship, character, and conduct.

**Leadership Society**—Phi Lambda Sigma, the national pharmacy leadership society, promotes the development of leadership qualities in pharmacy students. After the first professional year, eligible students may be elected to membership by society members. Election to the society is based on dedication, service, and leadership in the advancement of pharmacy.

**Faculty Committees**—Students are appointed to most standing and ad hoc committees that govern the college.

**Center for Health Interprofessional Programs (CHIP) and Council for Health Interprofessional Programs Duluth (CHIP-D)**—These health sciences student organizations promote a team approach to health care delivery through student services and community programs.

**UMD PharmD Organization**—This organization performs community projects that help pharmacy students grow as professionals, educates people about the pharmacy profession, and organizes activities to facilitate collegial relationships among students.

**Multicultural Pharmacy Student Organization**—This student group provides support to minority and majority pharmacy students on the Duluth campus and promotes intercultural understanding to enable all pharmacy students to provide better patient care.

**Career Development**—The college offers a variety of career-oriented activities, including an annual career day on both campuses, internship and postgraduate job listings, and résumé writing and interview skills presentations.

**Pharmacopa**—The Epsilon Chapter of Kappa Psi Pharmaceutical Fraternity prepares the annual *Pharmacopa*, which contains articles of interest as well as pictures of members of the graduating class, faculty, and staff.

**Pharmacy Day**—This annual celebration is sponsored by the school's College Board. Classes are excused for a day in April so students, faculty, and staff may attend a picnic.

## Awards

The college's Student Affairs Committee annually selects pharmacy students in good academic standing to receive the following awards:

**APhA-ASP Senior Recognition Award**—For advancing the profession of pharmacy through outstanding service to APhA-ASP.

**American Pharmacists Association (APhA)/ASP Mortar and Pestle Professionalism Award**—For a graduating student demonstrating professionalism and excellence in patient care, leadership and involvement in professional organizations, and extracurricular activities.

**ASHP Student Leadership Award**—For a third-year student with an interest in pharmacy practice in health systems and who has shown academic excellence and leadership ability.

*Award of Excellence in Clinical Communications*—For a Pharm.D. III or IV student demonstrating scholastic excellence and superior oral and written clinical communication skills. Sponsored by Facts and Comparisons.

*Award of Excellence in Nonprescription Medication Studies*—For a student demonstrating excellence in caring for patients in a community practice.

*Carol A. Beaty Memorial Award*—For the student demonstrating the greatest capability or interest in computer applications in pharmacy.

*John Y. Breckenridge Memorial Award*—For a Pharm.D. II student in recognition of outstanding scholastic achievement, professional potential, and leadership ability.

*Hallie Bruce Memorial Award*—For a graduating student with outstanding achievement in hospital pharmacy.

*Century Mortar Club Award*—For a 3rd or 4th year professional student who has exhibited a commitment to promoting the profession of pharmacy and the safe and appropriate use of medications.

*College Board Pharm.D. III Award*—For outstanding contributions to and involvement in the profession, the college, and its students. Candidate must be active during the Pharm.D. III year.

*Community Service Award*—For a graduating student who has made significant contributions to community education.

*Dean's Award*—For a student who has made significant contributions to the goals of the college.

*Dean's Research Award*—For a Pharm.D. I, II, or III student in recognition of outstanding achievement in research activities.

*Ole Gisvold Medicinal Chemistry Award*—For a graduating student with an exceptional record in all chemistry-related courses in the professional curriculum and potential for graduate study in medicinal chemistry.

*GlaxoSmithKline Patient Care Award*—For a graduating student with an exceptional record in all chemistry-related courses in the professional program and potential for graduate study in medicinal chemistry.

*Kappa Epsilon Award*—For a student member who has rendered outstanding service to the college.

*Kappa Psi Pharmacopa Awards*—For the editors of the Pharmacopa.

*Kappa Psi Activity Award*—For a graduating student member for scholastic performance.

*Deborah A. Kasper Memorial Award*—For the Pharm.D. I student who has contributed most to class esprit de corps.

*Isaak M. Koltzoff Rho Chi Research Award*—For a graduating student who has contributed to and shown promise in research in pharmaceutical science.

*Lilly Achievement Award*—For a graduating student who exemplifies scholastic and professional achievement, leadership ability, and ethical conduct.

*Merck Awards*—For graduating students with outstanding scholastic achievement.

*Metropolitan Professional Pharmacists Society Award*—For the president of the College Board.

*Minnesota Pharmacists Association (MPbA) Outstanding Student Award*—For an outstanding Pharm.D. II student.

*MPbA Patient Education Award*—For a graduating MPbA student for skill and ability in public health education.

*MPbA/ASP President's Award*—For the president of the Minnesota Pharmacy Student Alliance.

*Minnesota Society of Health-System Pharmacists Outstanding Student Award*—For a graduating student (first professional degree) for scholastic excellence, contributions, and leadership in hospital pharmacy.

*Mylan Pharmaceuticals Excellence in Pharmacy Award*—For a graduating student demonstrating academic achievement, high professional motivation, and superior proficiency in providing drug information services.

*Pharmacy Alumni Society Graduating Student Award*—For a graduating student for scholastic excellence and extracurricular involvement.

*Pharmacy Alumni Society Student Award*—For a Pharm.D. I, II, or III student demonstrating enthusiasm and the ability to stimulate personal and professional growth among others.

*Phi Delta Chi Award*—For a graduating student member for outstanding service to the fraternity and the college.

*Phi Delta Chi Scholarship Award*—For a student member for outstanding scholarship in the first professional year.

*Phi Lambda Sigma Award*—For the outstanding graduating member of Phi Lambda Sigma.

*Rho Chi Award*—For the Pharm.D. I student who has earned the highest GPA.

*Roche Pharmacy Communications Award*—For a graduating student for outstanding instructions and guidance to patients in a clinical practice.

*Teva Pharmaceuticals Outstanding Student Award*—For a fourth year student who in the opinion of the school excels in the study of pharmacy.

*Carol Windisch Memorial Award*—For a student member of the Alpha Chapter of Kappa Epsilon for service to the community and fraternity, scholastic achievement, extracurricular activities, and leadership ability.

*F. J. Wulling Pharm.D. I Award*—For the student with the second highest GPA.

*F. J. Wulling Pharm.D. II Award*—For the student with the highest GPA.

*F. J. Wulling Pharm.D. III Award*—For the student with the highest GPA.

## Student Code of Academic Integrity and Professional Responsibility<sup>1</sup>

**Part I**—The University of Minnesota College of Pharmacy Honor System—*developed, assumed, and administered by students*—is intended to provide a framework of expectations and responsibilities for members of the College of Pharmacy community. It is intended to promote a spirit of community, a spirit of professionalism, and a spirit of trust. It challenges pharmacy students to adopt principles of professional behavior and responsibility within the context of academic honesty, integrity, and community standards. It challenges College faculty and administration to uphold, demonstrate and profess those principles and standards. It encourages all members of the College of Pharmacy community to discuss expectations in the spirit of mutual trust and respect.

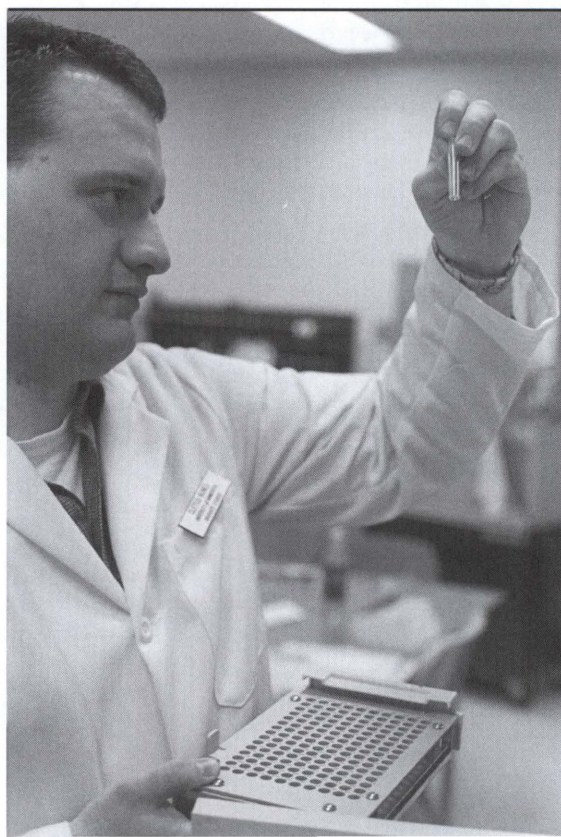
The essence of the Honor System is codified in the “*Pharmacy Student Code of Academic Integrity and Professional Responsibility*” (*the Code*), which specifies student responsibilities relative to academic honesty and clinical obligations. **The spirit and intent of the Honor System is to prevent the occurrence of such violations through proper education, and appeal to individual conscience and mutual understanding of expectations among the members of the College of Pharmacy community.** The Code is communicated, promoted and maintained by the Honor Council, a group of students elected by their peers. Reports of alleged Code violations are investigated and processed by the Honor Council in a manner that *assures the anonymity* of all parties involved, except in cases of appeal by either party.

The integrity of the Honor System and Code carries with it a *twofold responsibility*: first, to personally abide by the principles and rules of academic honesty and clinical obligations, and second, to ensure observance of its rules by all members. Both aspects of the twofold responsibility ultimately rely on the conscience of each individual. Understanding of these responsibilities is signified in the “*Honor Code Affirmation*” taken by students upon acceptance into the College community; action in accordance with these responsibilities is signified by the “*Honor Code Reaffirmation*”, made explicitly or implicitly on all College coursework submitted to fulfill requirements.

**Part II**—In addition to the general principles of academic integrity and professional responsibility mentioned above, each student is bound by the following specific provisions as part of the Code:

1. Each student will respect intellectual and physical property and will not use such property without the owner’s permission.
2. Each student recognizes that academic misconduct is unacceptable behavior for students in a professional school and is a violation of the Code. Academic misconduct is any unauthorized act that may give a student an unfair advantage over other students, including but not limited to the following:
  - Falsification:** altering, forging or misusing a University academic record; willfully providing University offices or officials with false, misleading, or incomplete information; fabricating data.
  - Plagiarism:** use of work or ideas of others without crediting the source.
  - Misuse of Test Materials:** taking, acquiring, or using test materials without faculty permission; taking or damaging a posted examination or assignment key.
  - Receiving Unauthorized Assistance:** copying or consulting information during an exam provided by other individuals, notes, textbooks or other references except as specified by the evaluator; copying or collaborating on class work, lab reports or other assignments which require independent work; receiving questions, answers or a copy of an original exam before taking the makeup exam.
  - Giving Unauthorized Assistance:** sharing answers during an exam; writing a paper or completing an assignment for another; sharing exam questions or answers with a student before a make-up exam.
3. Each student recognizes the privacy rights of other students involved in an Honor Council proceeding. Any student who serves as an accuser, witness or Honor Council member will not discuss with other students outside the proceeding the identities of parties, nature of, specific details about, or disposition of allegations and cases.

<sup>1</sup> Adapted from College of Pharmacy Student Code of Academic Integrity and Professional Responsibility. Full text available on request.



4. Each student recognizes that his or her primary responsibility while on clinical rotations is the care of her or his patients and that the patients' welfare has precedence over a student's personal educational objectives. The student will respect each patient's privacy and dignity and will maintain confidentiality with regard to information about patients. Each student recognizes his or her responsibility to consult with the house staff, preceptor, or attending physician regarding each patient's management.
5. Each student recognizes that part of her or his clinical obligations includes providing coverage when assigned (e.g., at clinics, at night, or on weekends). When such an assignment is made, a student will abide by it or make suitable alternative arrangements with the faculty member who made the assignment. If a student is convinced that such an assignment is inappropriate, the matter must be discussed with the course coordinator.

**Part III**—Upon accepting an offer of admission to the University of Minnesota College of Pharmacy, each student will be asked to sign the following statement:

"I hereby affirm that I have read, understand and accept the provisions and stipulations of the University of Minnesota College of Pharmacy Student Code of Academic Integrity and Professional Responsibility."

All signed Affirmations of the Honor Code shall be kept on file and maintained by the Office of Student Services. Students who are unwilling to sign this statement will not be permitted to register for courses at the College.

The Honor Council will administer an Honor Code orientation for all incoming degree-seeking students shortly after matriculation in the College of Pharmacy. At the conclusion of this orientation, students will be asked to affirm the Honor Code by writing and signing the *Honor Code Reaffirmation* in their own hand.

A reaffirmation of the Code is required on all coursework submitted to fulfill course requirements in courses offered by the College of Pharmacy.

**The reaffirmation must be explicitly made on examinations and may be required on other coursework, at the discretion of the instructor.**

**Part IV**—Cases of suspected violations of the Honor Code will be reported or referred to the Honor Council, which will investigate and act on such reports. All Honor Council activities are conducted in a manner that honors confidentiality and fairness.

1. After reports of alleged violations of the Code are made to the Honor Council, the case is investigated, discussed and subsequently the Honor Council votes to (i) "dismiss" or (ii) issue a "finding of violation" and recommend a sanction.
2. A violation of the Code occurs if the majority of voting Honor Council members feel that the evidence and testimony met the standard of "more likely than not" that a violation did occur.



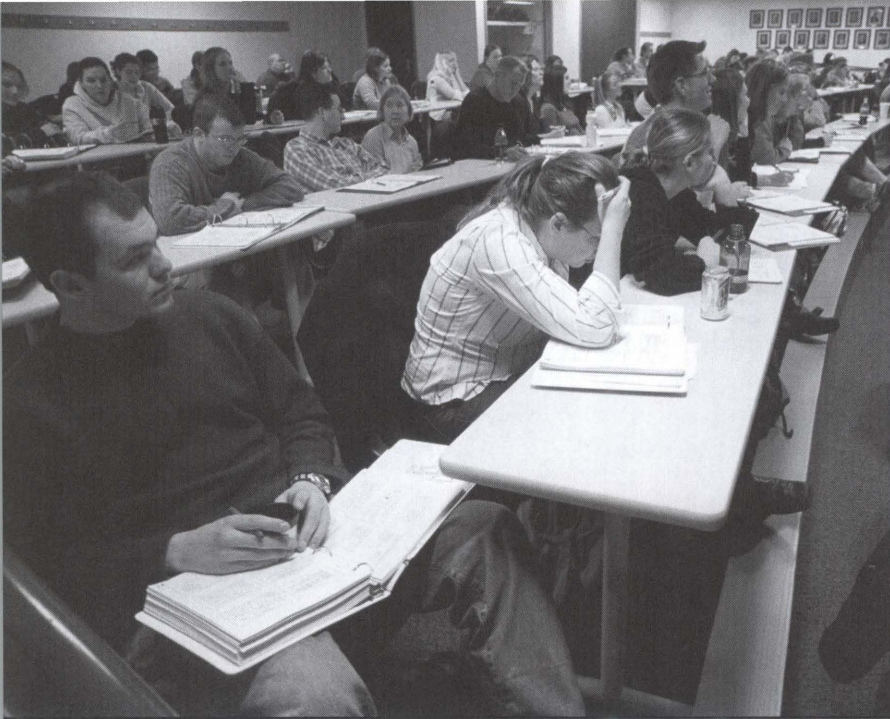
3. The Honor Council shall propose a recommended sanction if a student is found guilty of a violation of the Code. Some possible sanctions include, but are not limited to: written warning, probation, assignment of "F" for the assignment or course, or dismissal from the College.
4. Honor Council decisions or recommendations that are subsequently challenged by either party to a case are referred to the College of Pharmacy Academic Standing Committee for a formal hearing conducted in accordance with "due process" considerations. These considerations include the right of the "accused" to face the "accuser" and hence, a loss of anonymity.

## Immunization Policy

All College of Pharmacy students must be within compliance of the Academic Health Center immunizations policy. All students must submit immunization forms, signed by a qualified health service provider, showing immunization of or immunity to Hepatitis B, MMR, Tetanus/Diphtheria, Varicella (Chicken Pox), and Tuberculosis (with an initial two-step procedure). For more information, see the Boynton Health Service Web site: [www.bhs.umn.edu](http://www.bhs.umn.edu).

## Mandatory Health Insurance Policy

All Academic Health Center students must be covered by an adequate health insurance policy. If not otherwise covered by health insurance, students will be enrolled in and charged for health insurance. For more information, see the Boynton Health Service Web site: [www.bhs.umn.edu](http://www.bhs.umn.edu)



## Grading and Transcript Policy

1. This policy became effective fall 1997 for the Crookston, Morris, and Twin Cities campuses, replacing all previous grading policies. It may not be applied retroactively to any grades or symbols awarded before that time.
2. The University has two grading systems, A-B-C-D-F (with pluses and minuses) and S-N. Students may receive grades only from the grading system under which they have registered for a course.  
  
In addition, there are registration symbols that do not carry grade points or credit.
3. Instructors must clearly define for a class, at one of its earliest meetings, the performance necessary to earn each grade or symbol.
4. No student may receive a bachelor's degree unless at least 75 percent of the degree-qualifying residence credits carry grades of A, B, C, or D (with or without pluses or minuses). Each campus, college, and department may choose not to accept academic work receiving a D (with or without a plus or minus).  
  
Each campus, college, and department determines to what extent and under what conditions each grading system is used, may specify what courses or proportion of courses must be on one system or the other, and may limit a course to either system.
5. When both grading systems are available, students must choose one when registering for a course. The choice may not be changed after the end of the second week of classes (the first week in summer terms).
6. The University's official transcript, the chronological record of the student's enrollment and academic performance, is released by the University only at the student's request or in accord with state or federal statutes; mailed copies have the University's official seal printed on them. Students may obtain an unofficial transcript, except when they have a transcript hold on their record.
7. The University calculates for each student, both at the end of each grading period and cumulatively, a grade point average (GPA), the ratio of grade points earned divided by the number of credits earned with grades of A-F (including pluses and minuses). Both the periodic and cumulative GPA appear on each student's record.
8. When a student repeats a course, all grades for the course appear on the transcript, the course credits may not be counted more than once toward degree and program requirements, and only the last enrollment for the course counts in the student's GPA.
9. Students may petition the college scholastic committee or other appropriate body about this policy.
10. The following grades (with grade points as indicated) and symbols are used on transcripts.
 

A .... 4.00 ...	Represents achievement that is outstanding relative to the level necessary to meet course requirements.
A- ... 3.67	
B+ ... 3.33	
B .... 3.00 ...	Represents achievement that is significantly above the level necessary to meet course requirements.
B- ... 2.67	
C+ .. 2.33	
C .... 2.00 ...	Represents achievement that meets the course requirements in every respect.
C- ... 1.67	
D+ .. 1.33	
D .... 1.00 ...	Represents achievement that is worthy of credit even though it fails fully to meet the course requirements.
S .....	Represents achievement that is satisfactory (equivalent to a C- or higher and meets or exceeds course requirements in every respect). The S does not carry grade points and is not included in GPA calculations, but the credits count toward the student's degree program if allowed by the department.

F or N..... Represents failure or no credit and indicates that coursework was completed but at an achievement level unworthy of credit, or was not completed and there was no agreement between the instructor and student that the student would be awarded an I. Academic dishonesty is grounds for an F or N for the course. The F carries 0.00 grade points and is included in GPA calculations; the N does not carry grade points and is not included in GPA calculations.

I ..... Incomplete, a temporary grade that indicates coursework has not been completed. The instructor assigns an I when, due to extraordinary circumstances, the student was prevented from completing coursework on time. An I requires a written agreement between the instructor and student specifying the time and manner in which the student will complete the course requirements during the student's next term of enrollment. For undergraduates and adult special students, work to make up an I must be submitted within one year of the last final examination of the student's next term of enrollment; if not submitted by that time, the I will automatically change to an F (if A-F registration) or N (if S-N registration). The instructor is expected to turn in the new grade within four weeks of the date work is submitted. When an I is changed to another symbol, the I is removed from the record. Once an I has become an F or N, it may be converted to any other grade by petition of the instructor (or department if the instructor is unavailable).

K..... Indicates the course is still in progress and a grade cannot be assigned at the present time.

T ..... Transfer, a prefix to the original grade that indicates credits transferred from another institution or from one University college or campus to another.

V ..... Visitor, indicates registration as an auditor or visitor; does not carry credit or grade points.

W..... Withdrawal, indicates a student has officially withdrawn from a course. Students in the College of Pharmacy may not withdraw from any course without action by the Academic Standing Committee.

X..... Indicates a student may continue in a sequence course in which a grade cannot be determined until the full sequence of courses is completed. The instructor submits a grade for each X when the student completes the sequence.

## Attendance

Students are expected to attend every class for which they are registered on the campus where they are enrolled. Students must contact the Office of Student Services (OSS) to inform the college of an unavoidable extended absence. OSS will inform all of the student's course directors about the impending absences. It is the prerogative of the course director to excuse an absence (students may need proper documentation of illness, death in the family, etc.) or impose a penalty for an unexcused absence.

## Academic Standing Committee Policy

The Academic Standing Committee, a subcommittee of the Student Affairs Committee, consists of five faculty members and two students. This committee meets regularly to monitor the academic progress of students on both campuses, consider petitions from students who wish to depart from the established program requirements or have a requirement waived, and adjudicate accusations of student misconduct. Accusations of student misconduct are handled by the Academic Standing Committee: 1) if referred by the honor council after its review of alleged violations of the Student Code of Academic Integrity and Professional Responsibility; or 2) for initial adjudication of alleged violations that fall under Part II below. The following is a list of the committee's policies.

### Part I—Academic Progress

1. The committee periodically reviews the progress of students and can place students on probation at any time. Students on probation may be dismissed from the college if they are not making satisfactory progress. The committee informs students by mail of its actions.
2. Students who accumulate 6 or more credits of F, I, N, or D are warned of their academic status. Students who accumulate 8 or more credits of F, I, N, or D are placed on probation by the Academic Standing Committee. The Committee usually requires students on probation to repeat courses in which they received a grade that is lower than C-. Students who are required to repeat courses are on an extended program. Students on probation who receive a grade that is lower than C- are dismissed from the college.
3. Students who repeat courses must reregister for the courses.

4. Students who have an *overall GPA in required and elective courses* of less than 2.00 are placed on probation. These students will be reviewed periodically and may be dismissed from the college if they are not making satisfactory progress.
  5. Students who earn more than one F, I, or N grade in required courses in one academic year will be placed on probation and continued on probation for the academic year.
  6. Students who fail a required or elective course must repeat that course. Students who fail a required or elective course twice will be dismissed from the college.
  7. Students who earn an F or I in more than one required clerkship will be placed on probation or dismissed from the college. Students cannot make further progress toward the degree until making up at least one of the required clerkships.
  8. Students who are dismissed from the college and wish to appeal must present information that was not available at the time of their dismissal and has a direct bearing on their academic performance. This information must be presented to the associate dean within four weeks of the dismissal decision. If the associate dean decides the information is new and substantial, the Academic Standing Committee will reconsider the dismissal decision. Students who wish to be considered for readmission after the four-week period must apply through the admission application process.
  9. Students must satisfactorily complete all required and elective courses and have an overall GPA in them of at least 2.00 before beginning externships or clerkships.
  10. Students may have no more than four special examinations in prepharmacy coursework or course waivers in required pharmacy coursework.
  11. A course waiver remains effect for six years from the date the course waiver form was signed.
  12. The professional pharmacy program is a full-time continuous program. Students must petition the Academic Standing Committee should they require a leave of absence.
  13. Students who earn a grade of D+ or lower in physiology must successfully repeat the course before advancing to second year courses.
- a. Conduct which violates professional and or ethical standards; disrupts the operations of the University, College of Pharmacy or clinical training sites; or disregards the rights or welfare of patients, fellow students, college/clinical staff or other individuals.
  - b. Unlawful conduct or other improper behavior that impairs the student's capacity to function as a healthcare professional.
2. When presented with an alleged violation of the above standards or when a matter of academic integrity/professional responsibility is referred by the Honor Council, the Academic Standing Committee will hold a hearing to determine whether the alleged misconduct occurred. This hearing will comply with University standards for due process or fundamental fairness in a student disciplinary matter. Students who are found guilty of a violation by a preponderance of evidence will be subject to sanctions imposed by the committee, including but not limited to: warning, required compliance, probation, suspension, or dismissal.
  3. The Academic Standing Committee's decisions in matters of student misconduct may be appealed by the President's Student Behavior Review Panel within 10 days of the decision.

## Graduation Requirements

Degrees from the University of Minnesota are granted by the Board of Regents on the recommendation of the College of Pharmacy faculty. To be granted a degree, a student must

1. meet all prepharmacy course requirements (waived for students who have a B.S. in pharmacy from a college accredited by the American Council on Pharmaceutical Education);
2. complete all required courses and 10 credits of elective courses;
3. earn minimum overall GPA of 2.00 in required and elective courses;
4. have no more than 7 credits of F, I, N or D grades;
5. complete 30 credits in general education courses (waived for students who have a B.S. in pharmacy from a college accredited by the American Council on Pharmaceutical Education);
6. earn a minimum of 30 credits at the University of Minnesota; and
7. meet all financial obligations to the University.

### Part II — Student Misconduct

1. Any behavior by a pharmacy student that reflects on the student's qualifications or potential to become a competent and ethical professional is within the jurisdiction of the Academic Standing Committee to review. Aside from matters of academic integrity and professional responsibility in the classroom/clinic setting that are handled through the student honor system, the following behaviors constitute ground for discipline of students:

## Time Limit for Earning the Pharm.D. Degree

1. Students in the Pharm.D. program must complete all degree requirements within eight years of the time they first register for a required or elective course.
2. Students granted a leave of absence of two continuous semesters or less are entitled to meet only those graduation requirements for their original graduating class.
3. Students granted a leave of absence of more than two continuous semesters or more than one leave of absence of two continuous semesters or less, must meet the graduation requirements in effect at the time of graduation.

## Graduating With Distinction

College of Pharmacy students have the option of graduating with distinction if a cumulative GPA of 3.75 or higher in the required College of Pharmacy curriculum coursework is attained at the time of graduation. Students with a cumulative GPA of 3.90 or higher have the option of graduating with high distinction. Students who have completed the Honors Program will have the option of graduating with both the *summa cum laude* designation and the appropriate with distinction or with high distinction designation. For transfer students, the GPA must be based on a minimum of 45 credits taken in the College of Pharmacy, University of Minnesota.

## Chemical Dependency Policy

The College of Pharmacy supports the efforts of chemically dependent students to become free of their dependency problems. In dealing with chemically dependent students, the college's procedure involves intervention and requires students to join treatment and rehabilitation programs. The procedure ensures the safety of patients with whom students may come in contact and protects the interests of patients, students, the college, and faculty.

The following steps are taken as soon as a student is identified as having chemical dependency problems.

1. The student is granted a medical leave of absence by the Academic Standing Committee if he or she is participating in educational activities that involve direct patient contact (e.g., clinical clerkships or externships). The request for a leave may be initiated by the student or the associate dean. Students participating in educational activities that do not involve direct patient contact are not required to take a medical leave of absence.
2. The associate dean advises the student to enroll in a chemical dependency treatment program or a different mode of treatment contingent on the associate dean's approval. The student must provide evidence of successful completion of the treatment.
3. The associate dean advises the student to join a sobriety support group, e.g., Pharmacists Aiding Pharmacists, after completion of the treatment program.
4. The student is asked to give the associate dean permission to solicit letters of reference from counselors, employers, or members of the sobriety support group to monitor the progress of the student's rehabilitation program.
5. The student is asked to agree to give urine samples at any time, without prior notification, for detection of drug abuse.
6. The associate dean makes recommendations to the Academic Standing Committee to terminate the student's medical leave of absence and allow the student to participate in educational activities that *do not* involve direct patient contact after obtaining evidence that the student has completed the treatment program and is participating in the rehabilitation program.
7. The associate dean makes recommendations to the Academic Standing Committee to permit the student to participate in educational activities involving direct patient contact after obtaining evidence that the student has been chemically free for at least 10 weeks.
8. If the student is a licensed pharmacist and her or his license was suspended because of chemical dependency, the State Board of Pharmacy lifting the suspension may be used as evidence of sobriety and is a prerequisite for participation in educational activities involving direct patient contact. The license suspension being lifted does not obligate the college to allow the student to participate in educational activities that involve direct patient contact.







9. Office of Student Services staff are not required to report to the Academic Standing Committee on students who initiate information about a personal chemical dependency problem while being counseled. The staff may report such information to the associate dean.
10. The Academic Standing Committee may dismiss from the college students who have a recurrence of chemical dependency problems after completing the treatment and rehabilitation program described above.
11. If the student and the associate dean do not reach an agreement on a treatment and rehabilitation program, either may request a hearing by the Academic Standing Committee. The committee carefully considers all relevant factors, using procedural due process as a guide to its action. The student may appeal the Academic Standing Committee's decisions to the President's Student Behavior Review Panel within 10 days of the decision.

## Pharm.D. Curriculum

The professional program's graduates are prepared to enter pharmacy practice, advanced professional training programs, graduate education, and research. The program covers the chemical, biological, physical, social, and clinical sciences that underlie pharmacy. A common patient care process is used to teach students how to meet drug-related needs at a patient-specific level. Students develop skills in problem solving, communication, and analytical thinking. The program emphasizes professional ethics, social responsibility, professional citizenship, and commitment to lifelong learning.

The first three years of the curriculum provide the fundamental components of pharmacy education needed to practice in a variety of settings. Beginning in the second year, students can take elective courses in specific areas of interest to round out their required courses. Students may focus on research.

The curriculum is subject to change.

### First professional year (credits in parentheses)

#### Fall semester (18)

- Phsl/Phar 6061—Physiology and Neurophysiology Systems (5)
- Phar 6111—Practice of Pharmaceutical Care I (3)
- Phar 6141—Medical Microbiology and Immunizations (1)
- Phar 6151—Biochemistry of Medicinals I (3)
- Phar 6161—Drug Delivery I (3)
- Phar 6171—Pharmaceutical Care Skills I (2)
- Phar 7001—Early Pharmacy Practice Experience I (1)

#### Spring semester (17)

- Phar 6112—Practice of Pharmaceutical Care II (3)
- Phar 6152—Biochemistry of Medicinals II (3)
- Phar 6159—Pharmaceutical Immunology and Biotechnology (3)
- Phar 6162—Drug Delivery II (3)
- Phar 6165—Pharmaceutical Calculations (1)
- Phar 6172—Pharmaceutical Care Skills II (2)
- Phar 6177—Patient Assessment (1)
- Phar 7002—Early Pharmacy Practice Experience II (1)

### Second professional year

#### Fall semester (18.5)

- Phar 6121—Pharmacotherapy I: Patient-Centered Pathophysiology (5)
- Phar 6132—Biostatistics and Drug Literature Evaluation (2)
- Phar 6154—Medicinal Agents I (3)
- Phar 6163—Pharmacokinetics (3)
- Phar 6173—Pharmaceutical Care Skills III (2)
- Phcl/Phar 5101—Pharmacology I (3)
- Phar 7003—Early Pharmacy Practice Experience III (.5)

#### Spring semester (14.5)

- Phcl/Phar 5102—Pharmacology II (2)
- Phar 6122—Pharmacotherapy II: Patient Centered Pathophysiology (5)
- Phar 6131—Pharmacy and the Health Care System (3)
- Phar 6155—Medicinal Agents II (2)
- Phar 6174—Pharmaceutical Care Skills IV (2)
- Phar 7004—Early Pharmacy Practice Experience IV (.5)
- Elective courses

### Third professional year

#### Fall semester (15)

- Phar 6123—Pharmacotherapy III: Patient-Centered Pathophysiology (5)
- Phar 6156—Medicinal Agents III (4)
- Phar 6164—Biopharmaceutics (3)
- Phar 6175—Pharmaceutical Care Skills V (2)
- Phar 6181—Pharm.D. Paper and Seminar (1)
- Elective courses

### Spring semester (15)

- Phar 6124—Pharmacotherapy IV: Patient-Centered Pathophysiology (5)  
Phar 6133—Pharmacy Practice Management (3)  
Phar 6134—Law and Ethics in Pharmacy Practice (2)  
Phar 6135—Pharmacy Outcomes (2)  
Phar 6157—Human Nutrition and Drug Therapy (3)  
Elective courses

### Fourth professional year

#### Summer Session (12)

- Advanced Pharmacy Practice Experiences (12)

#### Fall Semester (14)

- Advanced Pharmacy Practice Experiences (12)  
Phar 6183—Pharm.D. Paper (2)

#### Spring Semester (13)

- Advanced Pharmacy Practice Experiences (12)  
Phar 6182—Pharm.D. Seminar (1)

## Research Emphasis

The research emphasis provides students the opportunity to participate in research and prepares them for graduate education. Students plan individualized programs with faculty advisers.

## Course Descriptions

The college's courses are offered by five departments: medicinal chemistry, pharmaceuticals, pharmaceutical care and health systems, experimental and clinical pharmacology, and—on the Duluth campus—pharmacy practice and pharmaceutical sciences. Medicinal chemistry courses (biochemistry of medicinals, medicinal agents, biotechnology, immunology) and pharmacology courses focus on understanding the actions and therapeutic uses of various types of medications that affect organ systems, immune functions, and infectious disease related problems. Pharmaceutical courses (drug delivery, pharmacokinetics, biopharmaceutics) concentrate on principles involved in drug dosage formulations; dosage form design; and how drugs are absorbed, distributed, and eliminated from the body. The experimental and clinical pharmacology courses include the pharmacotherapy sequence that applies basic and clinical sciences principles to the patient by focusing on the nature and cause of various disease states and the treatment of these disorders. Pharmaceutical care and health systems encompasses a pharmaceutical care sequence which examines the various roles of the pharmacist, current and future pharmacy practice, and a pharmacy management and public policy sequence. All courses on the Duluth campus are offered by the pharmacy practice and pharmaceutical sciences department.

## College of Pharmacy Courses

**PHAR/PHCL 5101. Pharmacology for Pharmacy Students.** (3.0 cr; Prereq-Regis 2nd yr pharmacy student or #, =Phcl 5101; A-F or Aud) Action/fate of drugs. Lectures, lab.

**PHAR/PHCL 5102. Pharmacology for Pharmacy Students.** (2.0 cr; Prereq-5101 or #, = Phcl 5102; A-F or Aud) Action/fate of drugs.

**Phar 5201. Health Sciences Applied Terminology.** (2 cr. Prereq-Basic knowledge of human anatomy/physiology) Self-study course. Medical terms, how to apply them when documenting/reporting patient care procedures. Course information is sent to the U of M e-mail addresses of registered students.

**Phar 5270. Therapeutics of Herbal and Other Natural Medicinals.** (2 cr; A-F only. Prereq-Phsl 6051, organic chemistry, pathophysiology of disease states, [3rd or 4th yr pharmacy student]) Herbal products/supplements. Pharmacology, clinical indications, and drug interactions of most commonly used products in nontraditional complementary health care. Historical significance and evidenced-based role of these products in health care. Case studies of clinical applications.

**Phar 5280. Principles of Health Care Counseling.** (1 cr. Prereq-2nd or 3rd yr pharmacy student) Basic counseling theory/practice. Means of bringing about behavioral change from perspective of pharmacy/health care practitioner. Application of course principles through interactive small group exercises. Case presentations by experienced pharmaceutical care practitioners.

**PHAR/PHSL 6061. Physiology and Neurophysiology Systems.** (5.0 cr; Prereq-[Biochemistry, human anatomy] recommended; intended primarily for PharmD students or grad students in health sciences; A-F or Aud, fall, every year) Survey of general physiology, neurophysiology, endocrine, circulatory, respiratory, digestive, energy metabolism, and renal physiology at molecular, cellular, and organ level. Emphasizes homeostasis and basic regulatory aspects of physiological processes of organ systems.

**Phar 6111. The Practice of Pharmaceutical Care I.** (3 cr; A-F only. Prereq-1st yr pharmacy student, ¶Phar 6171) The practice of pharmaceutical care, the pharmacy profession, drug information retrieval, professional communications, problem-solving skills, introductory clerkship.

**Phar 6112. The Practice of Pharmaceutical Care II.** (3 cr; A-F only. Prereq-1st yr pharmacy student, 6111, ¶6172) Comprehensive pharmaceutical care, health belief model, legal issues, prescription processing, clerkship continued and introduction to pharmacotherapy issues

## Course Symbols

..... The comma, used in prerequisite listings, means "and."

§..... Credit will not be granted if credit has been received for the course listed after this symbol.

¶..... Concurrent registration is required (or allowed) in the course listed after this symbol.

#..... Approval of the instructor is required for registration.

A prerequisite course listed by number only (e.g., prereq 5246) is in the same department as the course being described.

A class rank prerequisite (e.g., 3rd yr) states the minimum class standing a student must hold to register for a course without special permission from the Academic Standing Committee.

**Phar 6121. Pharmacotherapy I: Patient-Centered Pathophysiologic Approach.** (5 cr; A-F only. Prereq-6111, 6112, ¶6163, ¶6154, ¶6173, ¶Phcl 5101, Phsl 6051)

Pathophysiology/pharmacotherapy of common fluid-electrolyte, renal, acid-base, immunologic, and hematologic disorders.

**Phar 6122. Pharmacotherapy II: Patient-Centered Pathophysiologic Approach.** (5 cr; A-F only. Prereq-6121, 6131, 6163, Phcl 5101, ¶6154 and 6173 and Phcl 5102)

Pathophysiology/pharmacotherapy of common cardiovascular, endocrine, and gastrointestinal disorders.

**Phar 6123. Pharmacotherapy III: Patient-Centered Pathophysiologic Approach.** (5 cr Prereq-6112, 6153, 6163, Phcl 5101, Phcl 5102, Phsl 6041, Phsl 6051, ¶6175)

Pathophysiology/pharmacotherapy of common neurologic, psychiatric, pulmonary, and geriatric disorders.

**Phar 6124. Pharmacotherapy IV: Patient-Centered Pathophysiologic Approach.** (5 cr; A-F only. Prereq-6121, 6122, 6123, 6155, 6163)

Pathophysiology and pharmacotherapy of common infectious diseases, oncologic and toxicologic disorders.

**Phar 6131. Pharmacy and the Health Care System.** (3 cr; A-F only. Prereq-1st yr pharmacy student)

Delivery of pharmaceuticals and pharmacy services in the U.S. health care system, issues in hospital and community practice, characteristics of the pharmaceutical industry, economic and financial issues in delivering pharmaceutical services.

**Phar 6132. Biostatistics and Drug Literature Evaluation.** (2 cr; A-F only. Prereq-6111, ¶6173)

Biostatistical methods for data analysis and principles of study design for clinical research. Use of small computers to analyze and present data. Methods of searching for and evaluating drug-related information.

**Phar 6133. Pharmacy Practice Management.** (3 cr; A-F only. Prereq-2nd or 3rd yr pharmacy student)

Principles of pharmacy management, including inventory control, purchasing, pricing, financial analysis, and personnel management.

**Phar 6134. Law and Ethics in Pharmacy Practice.** (2 cr; A-F only)

Minnesota and federal laws, rules, regulations and court decisions affecting pharmacy practice. Moral and ethical considerations that affect and influence pharmacy practice.

**Phar 6135. Pharmacy Outcomes.** (2 cr; A-F only. Prereq-6123, 6175)

How to integrate knowledge of basic sciences, pharmacotherapy, pharmacy practice management, pharmaceutical care, written communication, literature evaluation, drug information retrieval, law/ethics, and pharmacoconomics to manage patients with multiple medical conditions.

**Phar 6141. Medical Microbiology and Immunizations.** (1 cr; A-F only)

Background knowledge in medical microbiology. Evaluating information on emerging infectious diseases, recommending immunization schedules for childhood/adult vaccines.

**Phar 6150. Honors Course: Medicinal Chemistry Seminar.** (1 cr [max 2 cr]; A-F only)

Current topics in medicinal chemistry.

**Phar 6151. Biochemistry of Medicinals I.** (3 cr; A-F only. Prereq-1st yr pharmacy student, ¶6171)

Biochemistry topics required for understanding pharmacodynamic action and therapeutic use of medicinal agents.

**Phar 6152. Biochemistry of Medicinals II.** (3 cr; A-F only. Prereq-6151, ¶6172)

Intermediary metabolism of carbohydrates, lipids, amino acids and nucleic acids and how these pathways are affected by therapeutic agents. Introduction to bioenergetics and drug metabolism.

**Phar 6153. Pharmaceutical Immunology.** (2 cr [max 3 cr]; A-F only. Prereq-6151)

Basic biological mechanisms of immune system. Emphasizes drug allergies, immunosuppressives, monoclonal antibodies, and preparation/use of immunologic derived agents in diagnosing/treating disease.

**Phar 6154. Medicinal Agents I.** (3 cr; A-F only. Prereq-6152, ¶Phcl 5101)

Basic principles of drug design, metabolism of action, and receptor interaction. Chemical/biological properties and therapeutic uses of autonomic, antihistaminic, renal, and cardiovascular drugs.

**Phar 6155. Medicinal Agents II.** (2 cr; A-F only. Prereq-6154, ¶6174 and Phcl 5102)

Chemical/biological properties and therapeutic uses of drugs affecting central nervous, endocrine, and intermediary metabolism systems.

**Phar 6156. Medicinal Agents III.** (4 cr; A-F only. Prereq-6152, 6153, 6154)

Therapeutic properties and uses of antiviral, anti-infective and antineoplastic agents.

**Phar 6157. Human Nutrition and Drug Therapy.** (3 cr; A-F only. Prereq-6152)

Basic concepts of human nutrition and clinical application.

**Phar 6158. Recombinant DNA-Derived Drugs.** (1 cr; A-F only. Prereq-6151)

Biotechnology as it relates to basic/clinical pharmaceutical sciences. Emphasizes recombinant DNA techniques and preparation/use of biotechnology-derived agents in diagnosing/treating disease.

**Phar 6159. Pharmaceutical Immunology and Biotechnology.** (3 cr; A-F only. Prereq-6151)

Basic biological mechanisms of immune system. Emphasizes drug allergies, immunosuppressives, monoclonal antibodies, and preparation/use of immunologic derived agents in diagnosing/treating disease. Biotechnology as it relates to basic/clinical pharmaceutical sciences. Emphasizes recombinant DNA techniques and preparation/use of biotechnology-derived agents in diagnosing/treating disease.

**Phar 6161. Drug Delivery I.** (3 cr; A-F only. Prereq-¶6171)

Mathematics associated with drug dispensing; technology of common pharmaceutical dosage forms. Phenomenological and theoretical basis of equilibrium and steady-state processes controlling drugs and dosage forms.

**Phar 6162. Drug Delivery II.** (3 cr; A-F only. Prereq-6161, ¶6172)

Phenomenological and theoretical basis of kinetic and dynamic processes controlling drugs and dosage forms.

**Phar 6163. Pharmacokinetics.** (3 cr; A-F only. Prereq-Calculus II (quarter), calculus I (semester) or equiv, 6162)

Physiological basis for drug absorption, distribution, metabolism and excretion; use of mathematical principles and equations to describe these processes as well as design dosage regimens for individual patients.

**Phar 6164. Biopharmaceutics.** (3 cr; A-F only. Prereq-6163, ¶6175)

Applied theory of dosage form design for optimal drug activity and bioavailability for all routes of drug administration.



**Phar 6165. Pharmaceutical Calculations.** (1 cr; A-F only. Prereq-1st yr pharmacy student)

Performing pharmaceutical calculations for patient care in all pharmacy practice environments.

**Phar 6171. Pharmaceutical Care Skills I.** (2 cr; A-F only. Prereq-¶6151, ¶6111, ¶6161)

Integrating basic/clinical science curriculum in a lab setting.

**Phar 6172. Pharmaceutical Care Skills II.** (2 cr; A-F only. Prereq-¶6112, ¶6152, ¶6162, 6171) or #)

Basic/clinical science curriculum in lab setting. Longitudinal care in lab setting.

**Phar 6173. Pharmaceutical Care Skills III.** (2 cr; A-F only. Prereq-¶6121, ¶6132)

Integrating basic/clinical science curriculum in a lab setting.

**Phar 6174. Pharmaceutical Care Skills IV.** (2 cr; A-F only. Prereq-¶6122, ¶6171, ¶6172, ¶6173) or #)

Basic/clinical science curriculum in lab setting. Longitudinal care in lab setting.

**Phar 6175. Pharmaceutical Care Skills V.** (2 cr; A-F only. Prereq-¶6123, ¶6164, ¶6171, ¶6172, ¶6173, ¶6174) or #)

Integrating basic and clinical science curriculum in a lab setting.

**Phar 6177. Patient Assessment.** (1 cr; A-F only. Prereq-1st yr pharm student)

How to obtain accurate health histories and perform systemic physical assessments of adult patients in pharmacy practice.

**Phar 6181. Pharm. D. Paper & Seminar.** (1 cr; A-F only. Prereq-3rd yr pharmacy)

How to write a research paper. Students present research project plan. Professional behavior, patient confidentiality, universal precautions.

**Phar 6182. Pharm.D. IV Seminar.** (1 cr; S-N only. Prereq-4th yr pharmacy student, 6181)

Students present thesis topics to peers and faculty evaluators.

**Phar 6183. Pharm.D. IV Paper.** (2 cr; S-N only. Prereq-4th yr pharmacy student, 6181)

Final paper describing a hypothesis-driven research project, patient-care oriented project, management project, drug-usage evaluation, or extensive literature review.

**Phar 6210. Immunization Tour.** (1 cr; A-F only. §NURS 4430. Prereq-[6175 or ¶6175], 3rd yr pharm student, #)

Role that health care practitioners play with respect to population based disease prevention. Students work collaboratively with students from another health discipline in planning/delivering influenza vaccination clinics. Student-led collaborative public health intervention.

**Phar 6211. Non-Prescription Drug Therapy: Focus on Patient Self-Care.** (2 cr Prereq-6112, [2nd or 3rd yr pharm student])

Over-the-counter medications. Diagnostic/durable medical equipment available in community pharmacies. Use of alternative medications.

**Phar 6212. Dermatology.** (1 cr; A-F only. Prereq-2nd or 3rd yr pharmacy student)

Pathophysiology and pharmacotherapy of dermatologic disorders.

**Phar 6215. Applied Pharmacokinetics.** (2 cr; A-F only. Prereq-6163)

Applying clinical pharmacokinetics and assay methodologies to patient care. Assessing drug therapy outcomes.

**Phar 6216. Pharmacokinetic Data Analysis and Simulation With SAAM II.** (2 cr; A-F only. Prereq-6163 with grade of at least B or #)

Introduction to SAAM II: an application for modeling, simulating, and analyzing pharmacokinetic/pharmacodynamic data.

**Phar 6217. Advanced Pharmaceutical Care Clinic.** (1 cr. Prereq-[6214, 6230] or 3rd yr pharmacy student)

Expanded, direct patient care opportunities. Students conduct comprehensive pharmaceutical care assessments in presence of practitioners. Weekly student case presentations/discussions.

**Phar 6219. Building a Pharmaceutical Care Practice.** (2 cr; A-F only. Prereq-6111, 6112, pharmacy student)

Initiating a pharmaceutical care practice. Building a personal practice plan.

**Phar 6220. Pediatric Drug Therapy.** (2 cr; A-F only. Prereq-3rd or 4th yr pharmacy student)

Pathophysiology/therapeutics of disease states. Common issues encountered in providing pharmaceutical care to pediatric patients.

**Phar 6221. Geriatric Pharmacotherapy.** (2 cr; A-F only. Prereq-3rd or 4th yr pharmacy student)

Pharmacokinetic/pharmacodynamic changes and their implications in elders. Effects of drug-drug/drug-disease interactions. Drug adherence barriers to provide optimum pharmacotherapy to elderly persons.

**Phar 6222. Advanced Pharmaceutical Compounding.** (2 cr; A-F only. Prereq-2nd or 3rd yr pharmacy student)

Expands compounding skills beyond those gained in pharmaceutical care lab.

**Phar 6223. Pharmacokinetics Research Seminar.** (1 cr [max 2 cr]; A-F only. §PHM 8150. Prereq-Phar 6163 with a grade of "B" or better)

Students critically evaluate literature in pharmacokinetics, pharmacodynamics, and drug metabolism.

**Phar 6224. Pharmacogenomics: Genetic Basis for Variability in Drug Response.** (2 cr Prereq-2nd or 3rd yr pharmacy student or [grad student, #])

Theory/practice of pharmacogenomics. Principles of human genetics/genomics. Applications to scientific education, problems in drug therapy optimization, and patient care.

**Phar 6230. Ambulatory Pharmaceutical Care Clinic.** (2 cr. Prereq-Enrolled pharmacy student)

How to conduct pharmaceutical care assessments, for patients with actual drug-related needs, in a controlled clinic setting.

**Phar 6231. Community Pharmacy Management.** (2 cr Prereq-6133)

Management techniques needed in community pharmacy practice, with emphasis on marketing and service.

**Phar 6232. Institutional Pharmacy Management.** (2 cr Prereq-2nd or 3rd yr pharmacy student)

Management techniques needed in various institutional pharmacy settings. Integrating distributive/clinical components of institutional practice.

**Phar 6233. Drug Use Review and Management.** (2 cr; A-F only. Prereq-3rd yr pharmacy)

Principles of drug use review in various health care settings. Optimizing quality, minimizing cost.

**Phar 6234. Pharmaceutical Economics and Public Policy.** (2 cr)

Economic and public policy aspects of the U.S. health care system. Health economic principles and trends applied to the pharmaceutical market.

**Phar 6235. Pharmaceutical Industry: Business and Policy.** (2 cr; A-F only)

Developing, manufacturing, distributing, economically evaluating, purchasing, managing, and ordering pharmaceuticals in health sector. Unique market characteristics, complex regulatory processes, rapid technological change, high expense growth, public policy issues.

**Phar 6246. Honors Course: Chemical Aspects of Drug Metabolism and Bioactivation.** (2 cr; A-F only. Prereq-#)

Chemical/enzymatic mechanisms of biotransformation/bioactivation of drugs and other xenobiotics. Reactivity/fate of bioactivated metabolites. Taught every other year.

**Phar 6247. Honors Course: Advanced Concepts in Drug Design.** (2 cr; A-F only. SCHEM 8700, MEDC 8700. Prereq-#)

Current approaches to rational design of drugs.

**Phar 6250. Honors Course: Social and Administrative Pharmacy Seminar.** (1 cr; A-F only. Prereq-#)

Current topics in hospital pharmacy.

**Phar 6260. Honors Course: Pharmaceutics Seminar.** (1 cr; A-F only. Prereq-#)

Contemporary topics in pharmaceutics research.

**Phar 6270. Honors Course: Critical Care Seminar.** (2 cr; A-F only. Prereq-§: ECP 8900; #)

Research/topics of importance to experimental/clinical pharmacology.

**Phar 6293. Directed Research I.** (1-5 cr [max 5 cr]. Prereq-#)

Directed research in pharmacy practice, pharmaceutics, medicinal chemistry, or experimental and clinical pharmacology.

**Phar 6294. Directed Study I.** (1-5 cr [max 5 cr]. Prereq-#)

Directed studies in pharmacy practice, pharmaceutics, medicinal chemistry, and experimental or clinical pharmacology.

**Phar 6393. Directed Research II.** (1-5 cr [max 5 cr]. Prereq-#)

Directed research in pharmacy practice, pharmaceutics, medicinal chemistry, or experimental and clinical pharmacology.

**Phar 6394. Directed Study II.** (1-5 cr [max 5 cr]. Prereq-#)

Directed studies in pharmacy practice, pharmaceutics, medicinal chemistry, and experimental or clinical pharmacology.

**Phar 6493. Directed Research III.** (1-5 cr [max 5 cr]. Prereq-#)

Directed research in pharmacy practice, pharmaceutics, medicinal chemistry, or experimental and clinical pharmacology.

**Phar 6494. Directed Study III.** (1-5 cr [max 5 cr]. Prereq-#)

Directed studies in pharmacy practice, pharmaceutics, medicinal chemistry, and experimental or clinical pharmacology.

**Phar 6501. Ethics in Pharmacy Practice.** (2 cr Prereq-[2nd or 3rd yr pharmacy student], #)

Ethical principles, selected schools of ethical thought. Students discuss/debate ethical dilemmas in pharmacy practice and health care.

**Phar 6800. Rehabilitation Pharmacotherapy.** (2 cr; A-F only. Prereq-Enrolled physical therapy student)

Impact of medications on rehabilitation. How rehabilitation affects medication use.

**Phar 7001. Early Pharmacy Practice Experience I.** (1 cr Prereq-

Criminal bkgr chk, BLS CPR cert for infants/child/adults, [proof of negative Mantoux test or explanation of positive test], proof of chicken pox immunity)

First in a series of four courses. Focuses on patient's perspective in managing and living with chronic conditions and chronic medication use. Includes community-based instruction, mentor program.

**Phar 7002. Early Pharmacy Practice Experience II.** (1 cr Prereq-

[Phar 7001 or #], criminal bkgr chk, BLS CPR cert for infants/child/adults, [proof of negative Mantoux test or explanation of positive test], proof of chicken pox immunity)

Second in a series of four courses. Focuses on patient's perspective in managing and living with chronic conditions and chronic medication use. Includes community-based instruction, mentor program.

**Phar 7003. Early Pharmacy Practice Experience III.** (.5 cr Prereq-

[7002 or #], criminal bkgr chk, BLS CPR cert for infants/child/adults, [proof of negative Mantoux test or explanation of positive test], proof of chicken pox immunity)

Third in a series of four courses. Focusing on patient's perspective in managing and living with chronic conditions and chronic medication use. Includes community-based instruction. Emphasizes mentoring.

**Phar 7004. Early Pharmacy Practice Experience IV.** (.5 cr Prereq-

[7003 or #], criminal bkgr chk, BLS CPR cert for infants/child/adults, [proof of negative Mantoux test or explanation of positive test], proof of chicken pox immunity)

Fourth in a series of four courses. Focuses on patient's perspective in managing and living with chronic conditions and chronic medication use. Includes community-based instruction. Emphasizes mentoring. Upcoming patient care opportunities.

**Phar 7120. Community Practice Experience.** (4 cr; A-F only. Prereq-

Pharm. D. IV, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/child/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Students assigned to participating community pharmacies and involved in community practice activities full-time for 5 weeks.

**Phar 7121. Institutional Practice Exper.** (4 cr; A-F only. Prereq-Pharm. D. IV, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test] and proof of chicken pox immunity) Students are assigned to participating hospital pharmacies. Student participate in drug distribution, IV compounding, clinical services, and administrative activities. Full-time for 5 weeks.

**Phar 7122. Acute Patient Care Practice Experience I.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience in an inpatient setting. Students are responsible for all drug-related needs of individual patients. Full-time for five weeks.

**Phar 7123. Ambulatory Patient Care Practice Experience.** (4 cr; A-F only. Prereq-Pharm. D. IV, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test] and proof of chicken pox immunity) Experience in an ambulatory setting. Students responsible for drug-related needs of individual patients. Full-time for five weeks.

**Phar 7126. Patient Care Practice Experience.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Patient care experience in any setting. Students responsible for drug-related needs of individual patients. Full-time for five weeks.

**Phar 7128. Acute Patient Care Practice Experience II.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience in an inpatient setting. Students are responsible for all drug-related needs of individual patients. Full-time for five weeks.

**Phar 7211. Elective Practice Experience I.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Patient care experience in any patient care setting. Students are responsible for drug-related needs of individual patients full-time. Full-time for five weeks.

**Phar 7212. Elective Practice Experience II.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Patient care experience in any setting. Students are responsible for drug-related needs of individual patients. Full-time for five weeks.

**Phar 7213. Elective Practice Experience III.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Patient care experience in any setting. Students are responsible for drug-related needs of individual patients. Full-time for five weeks.

**Phar 7216. Elective Practice Experience IV.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience in an inpatient setting. Students responsible for all drug-related needs of individual patients full-time for five weeks.

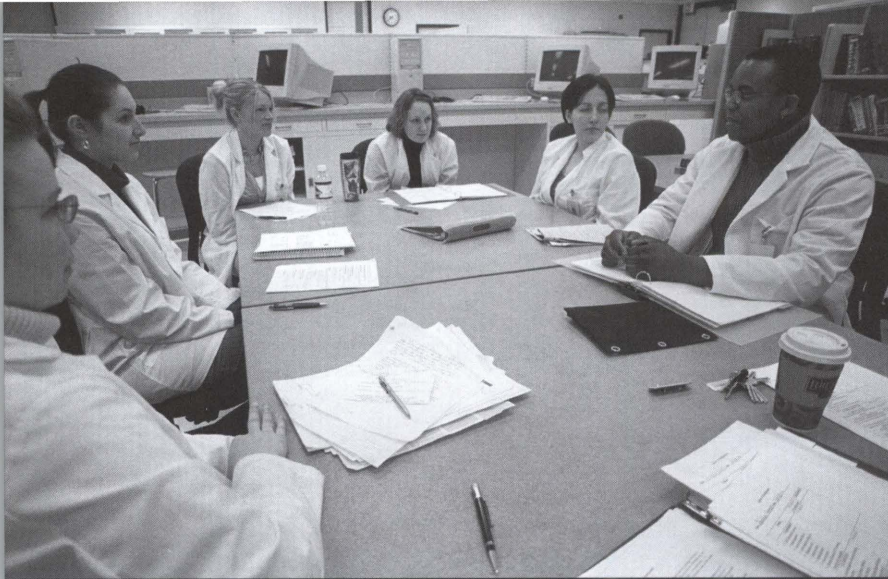


**Phar 7217. Elective Practice Experience V.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience in an inpatient setting. Students responsible for all drug-related needs of individual patients full-time for five weeks.

**Phar 7231. Research Practice Experience I.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience using research techniques in basic or clinical sciences or pharmacy practice. Full-time for five weeks.

**Phar 7232. Research Practice Experience II.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience using research techniques in basic or clinical sciences or pharmacy practice. Full-time for five weeks.

**Phar 7233. Research Practice Experience III.** (4 cr; A-F only. Prereq-Pharm.D. I-III, Minn Board of Pharm intern, criminal bkgr chk, BLS CPR cert for infants/chld/adults, proof of negative Mantoux test [or explanation of positive test], proof of chicken pox immunity) Experience using research techniques in basic or clinical sciences or pharmacy practice. Full-time for five weeks.



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 Linda L. Thrane, Vice President for University Relations  
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### Office of the Senior Associate Dean—Duluth (218-726-6000)

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 Shey D. Peterson, Principal Administrative Specialist

### Office of Student Services—Twin Cities (612-624-9490)

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 Orit Ackerman, B.A., Student Personnel Coordinator  
 Winston Minor, M.A., Admissions Recruiter  
 Kelly Russell, B.A., Office Specialist  
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 Angela Schmidt-Whitney, B.A., Admissions Coordinator  
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 Robin R. Stouder, M.S., Curriculum Coordinator

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 Debbie C. Sisson, R.Ph., M.S., Associate Director, Experiential Education  
 Stacy J. Tomhave, M.S., Student Services Coordinator

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TBA, Associate Dean for Research

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 Priya Bardal, Pharm.D. Assistant Director, Online Educational Programs  
 Melissa Bumgardner, Pharm.D., BCPS, Assistant Professor  
 Nicole Kast, M.A. Educational Development Associate

### Graduate Programs

Richard C. Brundage, Ph.D., Director of Graduate Studies in Social, Administrative, and Clinical Pharmacy—Experimental and Clinical Pharmacology track (612-624-3115)  
 Jon C. Schommer, Ph.D., Director of Graduate Studies in Social, Administrative, and Clinical Pharmacy—Social and Administrative Pharmacy track (612-624-2973)  
 Carston R. Wagner, Ph.D., Director of Graduate Studies in Medicinal Chemistry (612-624-9919)

Timothy S. Wiedmann, Ph.D., Director of Graduate Studies in Pharmaceutics (612-624-5151)

### Departments

Experimental and Clinical Pharmacology  
Medicinal Chemistry  
Pharmaceutics  
Pharmaceutical Care and Health Systems  
Pharmacy Practice and Pharmaceutical Sciences (Duluth)

### Faculty

*\* Recipient of Horace T. Morse-Minnesota Alumni Association Award for Outstanding Contributions to Undergraduate Education or Award for Outstanding Contributions to Postbaccalaureate, Graduate, and Professional Education*

Yusuf J. Abul-Hajj, Ph.D., Professor  
Grant W. Anderson, Ph.D., Assistant Professor  
Margaret B. Artz, Ph.D., Assistant Professor  
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David M. Ferguson, Ph.D., Associate Professor

Angela K. George, M.A., Instructor  
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Yueh-Erh (Jady) Rahman, M.D., Professor Emeritus  
Paul L. Ranelli, Ph.D., Professor





## University Information

### Twin Cities Campus

(area code is 612)

*Boynton Health Service*  
 Boynton health Service Building  
 625-8400  
[www.bhs.umn.edu](http://www.bhs.umn.edu)

*Child Care Center*  
 1600 Rollins Avenue S.E.  
 627-4014  
<http://education.umn.edu/ChildCareCenter/>

*College of Continuing Education Evening Classes*  
 101 Wesbrook Hall  
 624-4000  
[www.cce.umn.edu](http://www.cce.umn.edu)

*Counseling and Consulting Services*  
 109 Eddy Hall  
 624-3323  
[www.uccs.umn.edu](http://www.uccs.umn.edu)

*Financial Aid (Health Professions Office)*  
 2-693 Moos Tower  
 624-4138  
[www.onestop.umn.edu](http://www.onestop.umn.edu)

*Housing & Residential Life*  
 Comstock Hall-East  
 624-2994  
[www.housing.umn.edu](http://www.housing.umn.edu)

*One Stop Student Services Center*  
 200 Fraser Hall  
 624-1111  
[www.onestop.umn.edu](http://www.onestop.umn.edu)

*Student Accounts Receivable*  
 200 Fraser Hall  
 624-1111  
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*UMNTC Information*  
 625-5000

### Duluth Campus

(Area code is 218)

*Children's Place (child care center)*  
 260 Kirby Plaza  
 726-6635  
[www.d.umn.edu/cehsp/childrens\\_place/index.html](http://www.d.umn.edu/cehsp/childrens_place/index.html)

*Continuing Education*  
 Darland Administration Building  
 726-8113  
[www.d.umn.edu/ce](http://www.d.umn.edu/ce)

*Counseling Services*  
 104 Health Services  
 726-8155  
[www.d.umn.edu/hlthserv/counseling](http://www.d.umn.edu/hlthserv/counseling)

*Disability Services and Resources*  
 236 Kirby Student Center  
 726-8217  
[www.d.umn.edu/access](http://www.d.umn.edu/access)

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*Financial Aid/Student Assistance Center*  
21 Campus Center  
726-8000  
[www.d.umn.edu/fareg](http://www.d.umn.edu/fareg)

*Health Services*  
104 Health Services  
726-8155  
[www.d.umn.edu/hlthserv](http://www.d.umn.edu/hlthserv)

*Housing (on-campus)*  
149 Lake Superior Hall  
726-8178  
[www.d.umn.edu/housing](http://www.d.umn.edu/housing)

*Multicultural Center*  
270 Kirby Student Center  
726-6522  
[www.d.umn.edu/mlrc/msc](http://www.d.umn.edu/mlrc/msc)

*Student Accounts Receivable*  
Windows 15/16 Darland Administration Building  
726-7190  
[www.d.umn.edu/umdbo/sar.html](http://www.d.umn.edu/umdbo/sar.html)

*UMD Information*  
726-8000  
[www.d.umn.edu](http://www.d.umn.edu)

## Publications

**Catalog Use**—The information in this catalog and other University catalogs, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes.

This publication is available in alternative formats on request. Contact the Office of Admissions, University of Minnesota, 240 Williamson Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455 (612-625-2008; e-mail [admissions@umn.edu](mailto:admissions@umn.edu)).

This catalog is available online at [www.catalogs.umn.edu/phar/index.html](http://www.catalogs.umn.edu/phar/index.html).

**Class Schedule**—This online publication, available through <http://onestop.umn.edu/>, is updated every semester. It lists day school courses complete with hours, rooms, instructors, prerequisites, registration instructions, examination fees, maps, grading definitions, and other useful information.

**Other Catalogs**—Evening and summer courses are listed in the *College of Continuing Education Catalog* and *Summer Session Catalog*, respectively. Catalogs are also published for other University colleges.

## Policies

**Equal Opportunity**—The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

In adhering to this policy, the University abides by the Minnesota Human Rights Act, Minnesota Statute Ch. 363; by the Federal Civil Rights Act, 42 U.S.C. 2000e; by the requirements of Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by the Americans With Disabilities Act of 1990; by Executive Order 11246, as amended; by 38 U.S.C. 2012, the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Julie Sweitzer, Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 419 Morrill Hall, 100 Church Street S.E., Minneapolis, MN 55455 (612-624-9547).

**Access to Educational Records**—In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. (Exceptions under the law include state and federal educational and financial aid institutions.)

**Some student information**—name, address, electronic (e-mail) address, telephone number, dates of enrollment and enrollment status (full time, part time, not enrolled, withdrawn and date of withdrawal), college and class, major, adviser, academic awards and honors received, and degrees earned—is considered public or directory information. Students may prevent the release of public information. To do so, they must notify the records office on their campus (see below).

Students have the right to review their educational records and to challenge the contents of those records. The regents' policy is available for review online at [www.umn.edu/tc/students/grades/privacy.html](http://www.umn.edu/tc/students/grades/privacy.html), at 200 Fraser Hall, Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Registrar, 200 Fraser Hall (612-624-1111).

**Extracurricular Events**—No extracurricular events requiring student participation may be scheduled from the beginning of study day to the end of finals week. Exceptions to this policy may be granted by the Senate Committee on Educational Policy. The Senate advises all faculty that students who are unable to complete course requirements because of approved events during finals week will be provided an alternative and timely opportunity to do so.

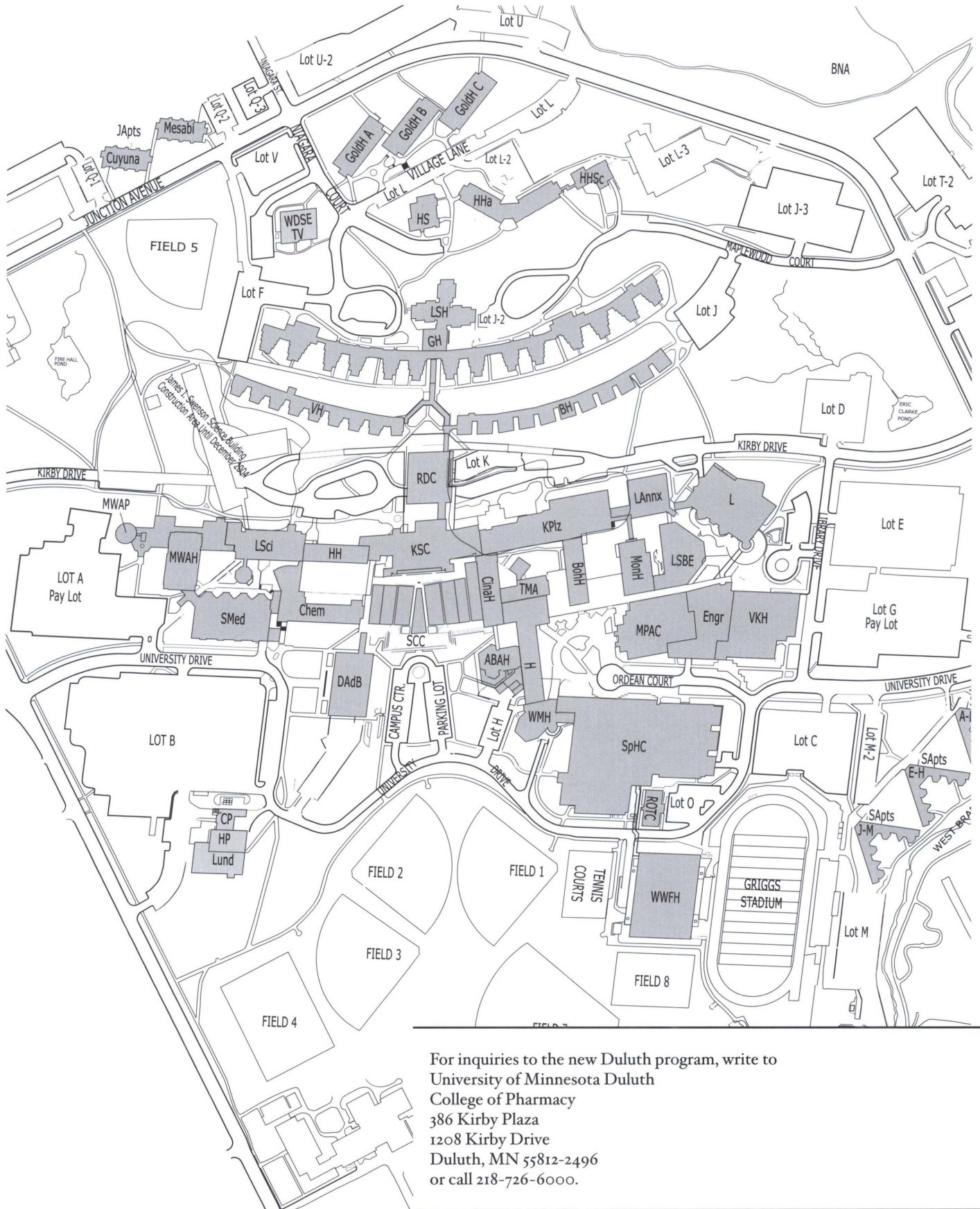
**Smoke-free Campus**—Smoking is prohibited in all facilities of the University of Minnesota, Twin Cities campus except for designated private residence hall rooms.

**E-Mail: the University's Official Means of Communication**—Students are responsible for all information sent via their University e-mail account. Students who forward their University e-mail account are still responsible for all information, including attachments, sent to the account.

# Minneapolis East Bank



# Duluth Campus



For inquiries to the new Duluth program, write to  
 University of Minnesota Duluth  
 College of Pharmacy  
 386 Kirby Plaza  
 1208 Kirby Drive  
 Duluth, MN 55812-2496  
 or call 218-726-6000.

University of Minnesota  
College of Pharmacy  
Office of Student Services  
5-110 Weaver-Densford Hall  
308 Harvard Street S.E.  
Minneapolis, MN 55455  
612-624-9490  
pharmacy@umn.edu  
www.pharmacy.umn.edu

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218-726-6000  
[www.pharmacy.umn.edu/duluth](http://www.pharmacy.umn.edu/duluth)