

# College of Pharmacy

## BIOPHARMACEUTICAL SCIENCES

Mailing Address: 335 College of Pharmacy Building  
(MC 865)  
833 South Wood Street  
Chicago, Illinois 60612-7231

Campus Location: 335 PHARM  
Program Codes: 20FS1903MS (MS);  
20FS1903PHD (PhD)

Telephone: (312) 996-0888

E-mail: [bpsdgs@uic.edu](mailto:bpsdgs@uic.edu)

Web Site: <http://www.bps.uic.edu/>

Director of Graduate Studies:

Richard A. Gemeinhart, PhD

The Department of Biopharmaceutical Sciences offers work leading to degrees in Biopharmaceutical sciences at both the master's and doctoral levels. Course work and research are available in the areas of pharmaceutics, pharmacodynamics, toxicology, cellular and molecular biology, nanopharmacy, and pharmacogenomics. Biopharmaceutical Sciences also participates in a joint PharmD/PhD program (see *Joint PharmD/PhD* information at the end of the *College of Pharmacy* section of the catalog) and the Interdepartmental Concentration in Neuroscience.

## ADMISSION REQUIREMENTS

Transcripts of all undergraduate and any graduate work must be submitted. In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

### Master of Science and Doctor of Philosophy

**Prior Degrees** Baccalaureate degree in pharmacy, pharmaceutical sciences, chemistry, biochemistry, bioengineering, biological sciences, a related biomedical science area, or a doctor of pharmacy degree.

**Grade Point Average** At least 3.00/4.00.

**Tests Required** GRE General.

**Minimum TOEFL Score** 550 (paper-based); 213 (computer-based); 80, with subscores of Reading 19, Listening 17, Speaking 20, and Writing 21 (new Internet-based TOEFL).

**Letters of Recommendation** Three required from individuals who are familiar with the applicant's training, ability, character, and potential for successful completion of the program.

**Personal Statement** Required; one page. The statement should address the applicant's educational and professional objectives.

**Other** This program does not typically admit applicants for an MS degree.

## DEGREE REQUIREMENTS

In addition to the Graduate College minimum requirements, students must meet the following program requirements:

### Master of Science

**Minimum Semester Hours Required** 32.

**Course Work Required Core Courses:** BPS 501, 502; BSTT 400; GC 401, 470, 471; GCLS 504, 505; plus BPS 595 (seminar) every semester for 4 hours total.

**Comprehensive Examination** None.

**Thesis, Project, or Course-Work-Only Options** Thesis required. Students must earn at least 6 hours in BPS 598.

### Doctor of Philosophy

**Minimum Semester Hours Required** 96 from the baccalaureate, 64 from the master's.

**Course Work Required Core Courses:** BPS 501, 502; BSTT 400; GC 401, 470, 471; GCLS 504, 505 (3 semester hours); plus BPS 595 (seminar) every semester for 8 hours total; and a minimum of 10 semester hours of program elective courses from a current list maintained by the department. At least 20 hours must be in 500-level didactic courses.

**Examinations Departmental Qualifying Examination:** May be required for certain admitted students to be used as a basis for advisement on additional course work to insure an appropriate level of preparedness.

**Preliminary (Candidacy) Examination:** Required.

**Dissertation** Required. Students must earn at least 40 hours in BPS 599.

### Interdepartmental Concentration in Neuroscience

Doctoral students may pursue the Interdepartmental Concentration in Neuroscience. Refer to *Interdepartmental Concentration in Neuroscience* in the *Graduate College* section for more information.

## FORENSIC SCIENCE

Mailing Address: Forensic Science Program (MC 866)  
833 South Wood Street  
Chicago, IL 60612-7231

Campus Location: 452 PHARM

Program Code: 20FS1274MS

Telephone: (312) 996-2250

E-mail: [reg@uic.edu](mailto:reg@uic.edu)

Web Site: <http://www.uic.edu/pharmacy/depts/forensicsci/>

Head of the Program and Director of Graduate Studies: R. E. Gaensslen

The master's program in Forensic Science is administered by the Department of Biopharmaceutical Sciences. The program encompasses a broad knowledge of the basic areas of forensic science laboratory disciplines (biology/biochemistry; chemistry and trace evidence analysis;



drug identification and toxicology; and pattern evidence) with emphasis on the integration of analytical and interpretative skills. The role of forensic laboratory sciences in justice system processes is an integrating theme. There is an opportunity for some specialization through the selection of electives and/or through the residency option.

## ADMISSIONS REQUIREMENTS

In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

### Master of Science

**Baccalaureate Field** BS in physical, biological, or pharmaceutical sciences (chemistry recommended). Minimum of one semester analytical chemistry and one semester physical chemistry. Instrumental analysis, biochemistry, and additional physical chemistry desirable.

**Grade Point Average** At least 3.00/4.00 overall. Applications are strengthened by 3.25/4.00 overall GPA and 3.00/4.00 GPA in core science and mathematics courses.

**Tests Required** GRE General Test; applications are strengthened by scores corresponding to 60th percentile or higher, and minimum TOEFL score of 600 (if applicable).

**Minimum TOEFL Score** 600 (paper-based); 250 (computer-based); 80, with subscores of Reading 19, Listening 17, Speaking 20, and Writing 21 (new Internet-based TOEFL). Recommended score of 87, with subscores of Reading 21, Listening 21, Speaking 23, and Writing 22.

**Letters of Recommendation** Three required.

**Personal Statement** Required.

## DEGREE REQUIREMENTS

In addition to the Graduate College minimum requirements, students must meet the following program requirements:

### Master of Science

**Minimum Semester Hours Required** 36.

**Course Work Required Courses:** BPS 580, 581, 582, 583, 584, and 588.

**Electives:** 9–12 semester hours that may be selected in the student's area of interest; may include 2–4 hours of internship (BPS 592), or up to 12 hours of residency (BPS 590) for those interested and who are accepted by the host agencies.

**Comprehensive Examination** Required for students choosing to fulfill the research requirement with BPS 597.

**Thesis, Project, or Course-Work-Only Options** Thesis or project. No other options are available.

**Thesis:** Thesis students must earn at least 6 hours in BPS 598.

**Project:** Project students must earn 3 hours in BPS 597. Those electing the project option must also take a comprehensive exam.

## MEDICINAL CHEMISTRY

Mailing Address: Department of Medicinal Chemistry and Pharmacognosy (MC 781)  
833 South Wood Street  
Chicago, IL 60612-7231

Campus Location: 539 PHARM

Program Codes: 20FS1454MS (MS);  
20FS1454PHD (PhD)

Telephone: (312) 996-7245

Fax: (312) 996-7107

E-mail: medchem@uic.edu, fitzloff@uic.edu

Web Site:

<http://www.uic.edu/pharmacy/depts/pmch/>

Head of the Department: Judy Bolton

Director of Graduate Studies: John F. Fitzloff

The Department of Medicinal Chemistry and Pharmacognosy offers work leading to degrees in Medicinal Chemistry at both the master's and doctoral levels. Medicinal chemistry is focused on the discovery and development of biologically active agents with potential therapeutic application. The program offers concentrations in Analytical and Chemical Toxicology, Biomedical Chemistry, Computational Medicinal Chemistry, Structural Biology, and Synthetic Medicinal Chemistry. Medicinal chemistry also participates in a joint PharmD/PhD program; see the *Joint PharmD/PhD* information at the end of the *College of Pharmacy* section of the catalog. The department also offers a graduate program in Pharmacognosy; consult the *Pharmacognosy* information in the *College of Pharmacy* section of the catalog for more information on that program.

## ADMISSION REQUIREMENTS

In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

### Master of Science and Doctor of Philosophy

**Baccalaureate Field** Pharmacy, chemistry, or the biological sciences. Prior academic work should include a year each of biology or biochemistry and organic chemistry.

**Grade Point Average** At least 3.00/4.00 for the final 60 semester (90 quarter) hours of baccalaureate study.

**Tests Required** GRE General. The GRE Advanced Chemistry or Biology test is recommended.

**Minimum TOEFL Score** 550 (paper-based); 213 (computer-based); 80, with subscores of Reading 19, Listening 17, Speaking 20, and Writing 21 (new Internet-based TOEFL).

**Letters of Recommendation** Three required.

**Personal Statement** Required.

## DEGREE REQUIREMENTS

In addition to the Graduate College minimum requirements, students must meet the following program requirements:



## Master of Science

**Minimum Semester Hours Required** 32. At least 16 semester hours must be completed in didactic courses.

**Course Work Required Core Courses:** GCLS 501; MDCH 561; 4 hours of MDCH 592; 2 hours of MDCH 595 (one hour literature seminar and one hour thesis seminar); plus a minimum of 6 additional hours of required concentration and elective courses. Students must select one of five concentrations: Analytical and Chemical Toxicology, Biomedical Chemistry, Computational Medicinal Chemistry, Structural Biology, or Synthetic Medicinal Chemistry.

### Required Concentration Courses:

Analytical and Chemical Toxicology—MDCH 412, 562, 571.

Biomedical Chemistry—GCLS 502; MDCH 412.

Computational Medicinal Chemistry—MDCH 572.

Structural Biology—BCHE 513, MDCH 564.

Synthetic Medicinal Chemistry—MDCH 560, 562, 564, 571, 573.

### Recommended Electives:

Analytical and Chemical Toxicology—Elective courses selected in consultation with the student's adviser. Suggested electives include GCLS 502; MDCH 564, 572, 594; PCOL 505, 508.

Biomedical Chemistry—Elective courses selected in consultation with the student's adviser. Suggested electives include BCMG 513, 561, 563; GCLS 503, 504, 505; MDCH 562, 594; MIM 552.

Computational Medicinal Chemistry—Elective courses selected in consultation with the student's adviser. Suggested electives include BCMG 513; BIOE 407; BSTT 400; CHEM 542, 558; CS 559; ECE 560; GCLS 502; MDCH 564, 594.

Structural Biology—Elective courses selected in consultation with the student's adviser. Suggested electives include CHEM 553, 554 and 558; GCLS 502; MDCH 412, 562, 571, 572, 594.

Synthetic Medicinal Chemistry—Elective courses selected in consultation with the student's adviser. Suggested electives include CHEM 532, 533, 535, 545 and 553; MDCH 572, 594.

**Thesis, Project, or Course-Work-Only Options** Thesis and oral defense required. No other options are available. Students must complete at least 5 semester hours in MDCH 598.

## Doctor of Philosophy

**Minimum Semester Hours Required** 96 from the baccalaureate.

**Course Work Required Core Courses:** GCLS 501; MDCH 561; 4 hours of MDCH 592; 2 hours of MDCH 595 (1-hour literature seminar and 1-

hour thesis seminar); and a minimum of 11 additional hours of required concentration and elective courses. Students must select one of five concentrations: Analytical and Chemical Toxicology, Biomedical Chemistry, Computational Medicinal Chemistry, Structural Biology, or Synthetic Medicinal Chemistry.

### Required Concentration Courses:

Analytical and Chemical Toxicology—MDCH 412, 562, 571.

Biomedical Chemistry—GCLS 502; MDCH 412.

Computational Medicinal Chemistry—MDCH 572.

Structural Biology—BCHE 513; MDCH 564.

Synthetic Medicinal Chemistry—MDCH 560, 562, 564, 571, 573.

### Recommended Electives:

Analytical and Chemical Toxicology—Elective courses selected in consultation with the student's adviser. Suggested electives include MDCH 564, 572, and 594; PCOL 505, 508.

Biomedical Chemistry—Elective courses selected in consultation with the student's adviser. Suggested electives include BCMG 513, 561, 563; GCLS 503, 504, 505; MDCH 562, 594; MIM 552.

Computational Medicinal Chemistry—Elective courses selected in consultation with the student's adviser. Suggested electives include BCMG 513; BSTT 400; CHEM 542, 558; ECE 559; GCLS 502; MDCH 564, 594.

Structural Biology—Elective courses selected in consultation with the student's adviser. Suggested electives include CHEM 553, 554, 558; GCLS 502; MDCH 412, 562, 571, 572, 594.

Synthetic Medicinal Chemistry—Elective courses selected in consultation with the student's adviser. Suggested electives include CHEM 532, 533, 535, 553; MDCH 572.

**Examinations Departmental Qualifying and Preliminary Examination:** Required. Passing this examination permits doctoral students to bypass the formal requirement of writing a master's thesis. Good academic standing required for eligibility to take the examination. The exam is given following completion of the second semester of required course work.

**Dissertation** Required; including oral defense.

**Other Requirements** All candidates must assist in teaching one or more of the courses offered by the College of Pharmacy or the department. Minimum of 70 semester hours of MDCH 599.





## PHARMACOGNOSY

Mailing Address: Pharmacognosy Program (MC 781)  
College of Pharmacy  
833 South Wood Street  
Chicago, IL 60612-7231

Campus Location: 539 PHARM

Program Codes: 20FS1563MS (MS);  
20FS1563PHD (PhD)

Telephone: (312) 996-7253

E-mail: Pharmacognosy@uic.edu

Web Site: [http://www.uic.edu/pharmacy/depts/pmch/full\\_frame.html](http://www.uic.edu/pharmacy/depts/pmch/full_frame.html)

Director of the Program: Norman R. Farnsworth

Director of Graduate Studies: Steven M. Swanson

The Department of Medicinal Chemistry and Pharmacognosy offers a program of study leading to degrees in Pharmacognosy at both the master's and doctoral levels. Major research areas concern the isolation, structure elucidation, and bioassay of natural products, including plant and microbial constituents having biological activity, the use and conservation of plants employed in traditional medicine, the fundamental mechanisms of activity of potential drugs and their targets, structure and function of cellular enzymes, microbial genomics, and rational drug design. Pharmacognosy participates in a joint PharmD/PhD program; see the *Joint PharmD/PhD* section of the catalog for more information. The department also offers work leading to graduate degrees in Medicinal Chemistry; consult the appropriate section of the catalog for more information.

## ADMISSION REQUIREMENTS

Applicants are considered on an individual basis. In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

### Master of Science and Doctor of Philosophy

**Baccalaureate Field** Chemistry or the biological sciences. Prior academic work should include a year each of biology and/or biochemistry, and organic chemistry.

**Grade Point Average** At least 3.00/4.00 for the final 60 semester (90 quarter) hours of undergraduate study.

**Tests Required** GRE General.

**Minimum TOEFL Score** 550 (paper-based); 213 (computer-based); 80, with subscores of Reading 19, Listening 17, Speaking 20, and Writing 21 (new Internet-based TOEFL).

**Letters of Recommendation** Three required.

**Personal Statement** Required.

**Other Requirements** PhD applicants strongly preferred.

## DEGREE REQUIREMENTS

In addition to the Graduate College minimum requirements, students must meet the following program requirements:

### Master of Science

**Minimum Semester Hours Required** 32.

**Course Work** At least 16 hours must be in didactic courses.

**Required Courses:** PMPG 480, 510, and one hour of 595.

**Comprehensive Examination** None.

**Thesis, Project, or Course-Work-Only Options** Thesis required. No other options are available.

**Other Requirements** Candidates must assist in one or more of the courses offered by the college or the department.

### Doctor of Philosophy

**Minimum Semester Hours Required** 96 from the baccalaureate.

**Course Work** At least 26 semester hours must be in didactic courses.

**Required Courses:** PMPG 507 and two hours of PMPG 595. Students must select one of four concentrations: Natural Product Drug Discovery, Medical Ethnobotany, Biomedical and Molecular Toxicology, or Pharmaceutical Biotechnology.

**Concentration-Specific Required Courses:**

Natural Product Drug Discovery—PMPG 510, 511, 515, 516, 521, 590, and 592.

Medical Ethnobotany—EPID 410; PMPG 511, 517, 518, 520, 590, and 592.

Biomedical and Molecular Toxicology—GCLS 501; PCOL 430, 508; PMPG 590, 592.

Pharmaceutical Biotechnology—GCLS 501, 502, 504/505; PMPG 522, 523.

**Electives:**

Natural Products Drug Discovery—Minimum of 10 hours, selected in consultation with the student's adviser. Suggested electives are: GCLS 501; MDCH 562, 573; PMPG 515, 517, 540, 565, 569.

Medical Ethnobotany—Minimum of 4 hours, selected in consultation with the student's adviser. Suggested electives are ANTH 415, 594; BIOS 539, 594; CHSC 450, 554; PMPG 534, 565, 569.

Biomedical and Molecular Toxicology—Minimum of 11 hours, selected in consultation with the student's adviser. Suggested electives are GCLS 502, 503, 515; MDCH 412, 561, 562, 571, and 594; NUSC 525; PMPD 561, 562.

Pharmaceutical Biotechnology—Minimum of 10 hours, selected in consultation with the student's adviser. Suggested electives are BIOS 524, 525; GCLS 503, 515; BCMG 513, 514; MDCH 412, 562, 564.

**Examinations** *Departmental Qualifying Examination*: Not required.

*Preliminary Examination*: Required; written and oral. Passing this examination permits doctoral students to bypass the formal requirement of writing a master's thesis.

**Dissertation** Required; including oral defense.

**Other Requirements** Candidates must assist in one or more of the courses offered by the college or the department.

## PHARMACY

Mailing Address: College of Pharmacy (MC 871)  
833 South Wood Street  
Chicago, Illinois 60612-7231

Campus Location: 241 PHARM

Program Codes: 20FS1568MS (MS);  
20FS1568PHD (PhD)

Telephone: (312) 413-1337

E-mail: [crawford@uic.edu](mailto:crawford@uic.edu)

Web Site: <http://www.uic.edu/pharmacy/depts/pmad/admissio.htm>

Director of Graduate Studies: Stephanie Crawford  
The College of Pharmacy offers work leading to a graduate degree in Pharmacy at both the master's (MS) and doctoral (PhD) levels. The general area of focus is Pharmacy administration, i.e., the social, behavioral, and economic pharmaceutical sciences. **Note:** These pharmacy graduate degrees are research degrees, not practice degrees. Students who wish apply to the professional degree program in Pharmacy, see requirements for the UIC Doctor of Pharmacy (PharmD) program on the Web <http://www.uic.edu/pharmacy/>.

Pharmacy (Administration) also participates in a joint PharmD/PhD program; see the *Joint PharmD/PhD* section of the catalog.

## ADMISSION REQUIREMENTS

Transcripts of all undergraduate and any graduate work must be submitted. In addition to the Graduate College minimum requirements, applicants must meet the following program requirements:

### Master of Science and Doctor of Philosophy

**Prior Degrees** Baccalaureate or doctorate in pharmacy or a related field.

**Grade Point Average** At least 3.00/4.00 in work for the first academic degree.

**Tests Required** GRE General.

**Minimum TOEFL Score** 600 (paper-based); 250 (computer-based); 90, with subscores of Reading 21, Listening 21, Speaking 23, and Writing 22 (new Internet-based TOEFL). Minimum TOEFL scores are subject to change.

**Letters of Recommendation** Three (master's) or four (doctoral) required from individuals who are familiar with the applicant's training, ability, character, and potential for successful completion of the program.

**Personal Statement** Required; 1–2 pages. The statement should address the applicant's educational and professional objectives.

**Other Requirements** Applicants to the PhD program must have completed a relevant master's degree prior to matriculation in the doctoral program.

## DEGREE REQUIREMENTS

In addition to the Graduate College minimum requirements, students must meet the following program requirements:

### Master of Science

**Minimum Semester Hours Required** 42.

**Course Work** *Required Core Courses*: EPSY 503; HPA 463; MGMT 541; PMAD 507, 510, 595; SOC 500.

**Comprehensive Examination** None.

**Thesis, Project, or Course-Work-Only Options** Thesis required. No other options are available.

**Thesis**: Students must earn 6 hours in PMAD 598.

### Doctor of Philosophy

**Minimum Semester Hours Required** 96 from the baccalaureate, 64 from the master's.

**Course Work** At least 20 hours must be in 500-level didactic courses.

*Required Core Courses*: HPA 463; PMAD 482, 500, 507, 510, 516, 525, 535, 571, 595, and one PMAD elective; PSCH 443, 543, 545; SOC 500.

**Examinations** *Departmental Qualifying Examination*: Required for Pharmacy Administration students only.

*Preliminary Examination*: Required.

**Dissertation** Required.

**Other Requirements** Students must demonstrate satisfactory proficiency in written and verbal communications and in the use of computer technology, according to the specifications developed for their area.

## JOINT PHARMD/PHD PROGRAM

The college invites highly qualified pharmacy students who are interested in both clinical aspects of pharmacy and the pharmaceutical sciences research to consider the joint PharmD/PhD program. The joint program permits a student to combine the PharmD with any of the PhD programs offered in the college: Biopharmaceutical Sciences, Medicinal Chemistry, Pharmacognosy, and Pharmacy (pharmacy administration). This makes it possible for students to earn both degrees more quickly than would be possible if each were done separately.



Students already attending the UIC PharmD program may apply for the joint program following the requirements stated below. Students wishing to apply for the joint program at the same time they apply to Pharmacy School should; 1) follow the procedures for applying to the PharmD program; and 2) follow the procedures below for applying to the desired PhD program.

## APPLICATION PROCEDURE

The following materials should be submitted to the director of graduate studies for the PhD program to which the student wishes to apply:

*Biopharmaceutical Sciences:* Dr. Richard A. Gemeinhart, Room 335 PHARM, bpsdgs@uic.edu.

*Medicinal Chemistry:* Dr. John Fitzloff, Room 539 PHARM, Fitzloff@uic.edu.

*Pharmacognosy:* Dr. Steven Swanson, Room 302 PHARM, swanson@uic.edu.

For the Pharmaceutical Biotechnology track in the *PhD Pharmacognosy program:* Dr. Alexander Mankin, Room 3052 MBRB, shura@uic.edu.

*Pharmacy (Administration):* Dr. Stephanie Crawford, Room 258 PHARM, crawford@uic.edu.

## Doctor of Pharmacy/Doctor of Philosophy

**Transcripts** Official copies of all prior college work, including the applicant's PharmD program.

**Test Scores** GRE General Test. The PhD program in Medicinal Chemistry recommends taking and reporting a score for the GRE Advanced Test in Chemistry or Biology.

**Letters of Recommendation** Three required from individuals who can comment knowledgeably on the applicant's academic abilities and research potential.

**Statement of Purpose** One page in length, setting forth the basis for applicant's interest in the joint degree program, amplifying on the applicant's qualifications for admission to the particular PhD program, and explaining how completion of the PharmD and the PhD fits into overall educational and career goals.

**Deadlines** Contact PhD program for the applicable deadline.

