



**COLLEGE OF
PHARMACY**

UNIVERSITY OF MICHIGAN

**Master of Science in
Integrated Pharmaceutical Sciences**

MSIPS Sample Curriculum for students entering the Fall 2024 term

Available courses for the MSIPS program will vary depending on the year an applicant applies and is accepted into the program. The sample curricula below is intended to provide useful information to applicants regarding the courses that may be available during the chosen year of enrollment for each track in the program. Specific course selections for each student will be determined mutually by the advisor and the student following matriculation into the MSIPS program. A sample list of elective courses is listed below but does not represent a complete list of the many options available for students at the University of Michigan.

Pharmaceutical Sciences Track**

| Fall Term 2024 | | | | Winter Term 2025 | | | | Spring/Summer Term 2025 | | |
|----------------|--------------------------------|---------|--------|------------------|---|---------|---------------------------|-------------------------|-------------|---------|
| Course | Description | Credits | Prereq | Course | Description | Credits | Prereq | Course | Description | Credits |
| PS 700 | Pharmacokinetics | 2 | | PS 705 | Advances in Drug Deliv Tech | 2 | | INTPHARM 790 | Capstone | 8 |
| PS 702 | Biopharmaceutics | 2 | | PS 717 | Biopharm Engineering | 3 | | | | 8 |
| PS 706 | Biologic products | 2 | | PS 760 | Adv Pharmacokinetics & Biopharmaceutics | 2 | PS 700, Math 216 or equiv | | | |
| CPTS 820 | Clin Trans in Pharmacokinetics | 1 | | INTPHARM 750 | Seminar | 1 | | | | |
| INTPHARM 750 | Seminar | 1 | | MEDCHEM 660 | RCRS | 0.5 | | | | |
| MEDCHEM 660 | RCRS | 0.5 | | | <i>Electives*</i> | 5 | | | | |
| | <i>Electives*</i> | 3 | | | | 13.5 | | | | |
| | | 11.5 | | | | | | | | |

Medicinal Chemistry Track**

| Fall Term 2024 | | | | Winter Term 2025 | | | | Spring/Summer Term 2025 | | |
|----------------|----------------------------|---------|--------|------------------|--|---------|--------|-------------------------|-------------|---------|
| Course | Description | Credits | Prereq | Course | Description | Credits | Prereq | Course | Description | Credits |
| Chem 540 | Organic Principles | 3 | | MC 535 | Principles of Drug Design | 3 | MC532 | INTPHARM 790 | Capstone | 8 |
| MC 532 | Bioorgan Princ of Med Chem | 3 | | MC 660 | RCRS | 0.5 | | | | 8 |
| PS 702 | Biopharmaceutics | 2 | | PS 705 | Advances in Drug Deliv Tech | 2 | | | | |
| INTPHARM 750 | Seminar | 1 | | INTPHARM 750 | Seminar | 1 | | | | |
| | | | | | <i>College of Pharmacy Required Course</i> | 3 | | | | |
| MC 660 | RCRS | 0.5 | | | <i>Electives*</i> | 4 | | | | |
| | <i>Electives*</i> | 2 | | | | 13.5 | | | | |
| | | 11.5 | | | | | | | | |

Clinical Pharmacy Track**

| Fall Term 2024 | | | | Winter Term 2025 | | | | Spring/Summer Term 2025 | | |
|----------------|---------------------------------|---------|--------|------------------|----------------------------|---------|--------|-------------------------|-------------|---------|
| Course | Description | Credits | Prereq | Course | Description | Credits | Prereq | Course | Description | Credits |
| BioStat 521 | Applied Biostatistics | 4 | | CPTS 822 | Res and Trans in Pgenomic | 3 | | INTPHARM 790 | Capstone | 8 |
| CPTS 820 | Clin Transl in Pharmacokinetics | 1 | | P 647 | Clin Trials for Trans. Sci | 2 | | | | 8 |
| PS 700 | Pharmacokinetics | 2 | | MC 660 | RCRS | 0.5 | | | | |
| MC 660 | RCRS | 0.5 | | CPTS 830 | Health Service Research | 3 | | | | |
| INTPHARM 750 | Seminar | 1 | | INTPHARM 750 | Seminar | 1 | | | | |
| CPTS 832 | Pharmacy Informatics Research | 3 | | | <i>Electives*</i> | 2 | | | | |
| | <i>Electives*</i> | 2 | | | | 11.5 | | | | |
| | | 13.5 | | | | | | | | |

Examples of Elective Courses*

| U-M Elective Courses Offered Fall Semester | | | | U-M Elective Courses Offered Winter Semester | | | |
|--|-------------------------------|---------|-----------|--|-------------------------------|---------|-----------|
| Course | Description | Credits | Prereq | Course | Description | Credits | Prereq |
| Biolchem 515 | Intro to Biochem | 4 | | Biolchem 515 | Intro to Biochem | 4 | |
| Biophys 520 | Theory & Methods Biophy | 3 | | Biophys 521 | Prin Biophysical Chem | 3 | |
| BioStat 521 | Applied Biostatistics | 4 | | BioStat 521 | Applied Biostatistics | 4 | |
| CDB 530 | Cell Biology | 3 | | Biostat 522 | Biostats Health-related | 3 | |
| Chem 520 | Methods of Bio Chem | 3 | BioCh 415 | Canbio 554 | The Science of Cancer | 4 | |
| Chem 540 | Organic Principles | 3 | | CDB 530 | Cell Biology | 3 | |
| Pcol 601 | Quant. Princ of Pcol | 3 | | Chem 520 | Methods of Bio Chem | 3 | BioCh 415 |
| Physiol 510 | Systems and Integrative | 4.5 | | Pcol 601 | Quant. Princ of Pcol | 3 | |
| Stats 500 | Statistical Learning: Regress | 3 | | Physiol 510 | Systems and Integrative | 4.5 | |
| | | | | Stats 500 | Statistical Learning: Regress | 3 | |

* Electives may be chosen from College of Pharmacy courses or from other graduate level courses offered at the University of Michigan.

** Courses listed are suggested but not required for students interested in this track. Nine credits per semester is full time.

A minimum of 32 credits are required for degree.