

## Emphasis - Medicinal Chemistry

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### Ph.D. in Pharmaceutical Sciences Description

The Ph.D. in pharmaceutical sciences can be completed with an emphasis in environmental toxicology, medicinal chemistry, pharmaceuticals, pharmacology, pharmacognosy, or pharmacy administration.

**Minimum Total Credit Hours: 57**

#### Course Requirements

Requirements for each emphasis area are given in the respective program description sections.

### Emphasis - Medicinal Chemistry Description

A Ph.D. in pharmaceutical sciences with an emphasis in medicinal chemistry prepares a graduate to do basic research toward understanding the mechanism of action of drugs. In such research, a medicinal chemist strives to establish correlations between biological properties and physicochemical parameters of drugs. The field is devoted to the discovery and rational development of new agents in the treatment of diseases.

#### Goals/Mission Statement

The mission of the Department of Medicinal Chemistry is to apply chemistry and the chemically related sciences to the teaching of professional pharmacy students and graduate students. The research mission of the department is the discovery, design, analysis, and the further development of potential drugs and the discovery of potential drug design targets.

#### Course Requirements

The requirements for the Ph.D. with an emphasis in medicinal chemistry consist of a minimum of 21 graduate course hours in medicinal chemistry, 6 hours of chemistry courses, and 6 hours of elective credit. These requirements can be satisfied in the following way:

1. Advanced Medicinal Chemistry I, II (Medc 501 and Medc 502) (6 hours);
2. Drug Action and Design (DAD) courses (four out of seven) (12 hours);
3. Seminar on Current Medicinal Chemistry Topics (Medc 543 and/or Medc 544) (2 hours);
4. Chemistry courses 500/600 level (6 hours); Advanced Organic Chemistry (Chem 527, 528) is recommended;
5. Graduate-level elective courses (contingent upon research adviser approval) (6 hours); Analysis of Natural Products Drugs (Phcg 632 or 633) is recommended;
6. Problems in Medicinal Chemistry (Medc 541 or Medc 542) (1 hour).

Seminar Requirement - Students are required to register for either Medc 643 (fall) or Medc 644 (spring) every semester, with the exception of those semesters when the student presents a seminar and should register for either Medc 543 (fall) or Medc 544 (spring).

#### Other Academic Requirements

Cumulative Examinations - Cumulative exams will be administered monthly throughout the calendar year. Once a student has officially entered the exam process, that student will have 18 opportunities to pass five examinations from at least four different department faculty members. He/she is required to pass a minimum of two of the first 12 exams administered.

Original Research Proposal - A student must prepare, submit, and successfully (orally) defend an original research proposal (ORP). Procedures for this requirement will be provided by the department or adviser.

Dissertation - A student must prepare and orally defend a dissertation based on original, independent research.

#### Degree Requirements

The academic regulations for this degree program, as entered in the University of Mississippi Catalog, are in effect for the current or selected academic year and semester. The University of Mississippi reserves the right to 1) change or withdraw courses; 2) change rules for registration, instruction, and graduation; and 3) change other regulations affecting the student body at any time.

### Ph.D. in Pharmaceutical Sciences

| REQUIREMENT              | HOURS | DESCRIPTION  |
|--------------------------|-------|--|
| Select an emphasis       |       | Student must enroll in one of the Ph. D. in Pharmaceutical Sciences emphasis areas: medicinal chemistry, pharmaceuticals, pharmacognosy, environmental toxicology, pharmacy administration or pharmacology/toxicology,   |
| GPA requirements         |       | A cumulative average of not less than 3.0 (B) must be achieved in all graduate work taken.   |
| Pharmacy Dean's approval |       | This Degree Audit program is an advising tool only. The dean's office will make the final certification that the student qualifies for graduation. The dean's office will also determine if other university or school requirements (GPA, etc.) have been met. |

### Emphasis - Medicinal Chemistry

| REQUIREMENT                      | HOURS | DESCRIPTION  |
|----------------------------------|-------|--|
| <a href="#">Medc 501</a> - C min | 3     | Complete <a href="#">Medc 501</a> with a grade of C or better. |
| <a href="#">Medc 502</a> - C min | 3     | Complete <a href="#">Medc 502</a> with a grade of C or better. |



| REQUIREMENT                                     | HOURS | DESCRIPTION  |
|---|-------|--|
| <a href="#">Medc 541</a> or <a href="#">542</a> | 2     | Complete at least one of the following courses with a grade of C or better: <a href="#">Medc 541</a> or <a href="#">Medc 542</a> .   |
| <a href="#">Medc 797</a>                        | 18    | Student must complete at least 18 hours of dissertation credits ( <a href="#">Medc 797</a> ).  |
| 6 hrs chemistry 500+                            | 6     | Complete at least 6 semester hours of chemistry courses at 500/600 level. Each course must be approved by the student's GPC/Chair and completed with a grade of C or better.   |
| Cumulative exams                                |       | Student must pass five examinations from at least four different department faculty members. He/she is required to pass a minimum of two of the first 12 exams administered.   |
| DAD courses                                     | 12    | Student must complete at four out of seven of the Drug Action and Design (DAD) courses ( <a href="#">Medc 609</a> , <a href="#">611</a> , <a href="#">612</a> , <a href="#">613</a> , <a href="#">614</a> , <a href="#">618</a> , or <a href="#">620</a> ). Each course must be completed with a grade of C or better.   |
| Elective courses                                | 6     | Complete at least 6 hours of graduate-level elective courses. Courses must be approved by the student's GPC/Chair.   |
| Medc Seminar                                    | 2     | Complete at least 2 semester hours of Medc seminar courses ( <a href="#">Medc 543</a> and/or <a href="#">Medc 544</a> ) with a grade of C or better in each.   |
| Oral defense                                    |       | Every candidate for the Ph.D. degree must successfully pass a final oral examination (defense of dissertation) administered by the student's dissertation committee and scheduled by the Graduate School.  |
| Research proposal                               |       | Student must prepare, submit, and successfully (orally) defend an original research proposal (ORP).  |
| Submit Dissertation                             |       | Student must submit a dissertation to his/her GPC/Chair. The dissertation must conform to the regulations governing style set forth in "A Manual of Thesis and Dissertations Preparations", available in the Graduate School Office. Two copies of the dissertation must be presented to the Graduate School after the final examination for the doctorate has been accepted and before the beginning of the regular examination period for the semester in which the candidate plans to graduate. |

