**pharmaceutical nanotechnology program**

**Master of Science in Pharmaceutical Nanotechnology (M.S.P.N.) Degree**

**DEGREE INFORMATION**

**Program Admission Deadlines:**

Domestic Students:

**Fall** February 15

**Spring** October 15

**Summer**  February 15

International Students living outside the U.S.

Deadline for immigration documents, etc.:

**Fall** February 15

**Spring** September 15

**Summer**  February 15

**Minimum Total Hours:** 32

**Program Level:** Masters

**CIP Code:** 51.2099

**Dept Code: ---**

**Program (Major/College):** PNT / RX

**Effective:**  Spring 2016

**CONTACT INFORMATION**

College: Pharmacy

Contact Information: [www.grad.usf.edu](http://www.grad.usf.edu/)

**PROGRAM INFORMATION**

The Master’s of Science degree in Pharmaceutical Nanotechnology is designed to train students in the skills they will need to understand the burgeoning technological advances in science at the nanoscale and how new nanomaterials and processes can be applied to drug delivery, diagnosis, treatment monitoring, tissue regeneration, personalized medicine and more. This program aims to bridge the gap between nanotechnology and medicine, providing students with advanced knowledge, skills and practical experience within the principles, technology and applications within this exciting and innovative area.

**Accreditation:**

Accredited by the Commission on Colleges of the Southern Association of College and Schools.

**Major Research Areas:**

Nano, Nanotechnology, Nano Pharmacy, Nano Pharmaceutics, Nano Pharmaceutical

**ADMISSION INFORMATION**

Must meet University requirements (see Graduate Admissions) as well as requirements listed below

* Bachelor’s degree preferably in the biomedical, biological, chemical sciences or engineering from a regionally accredited institution with a minimum overall GPA of 3.00 and present a score on the Graduate Record Examination (GRE) Medical College Admission Test (MCAT), or PCAT or DAT score.
* GRE, MCAT or DAT standardized test scores or evidence of substantial health/sciences experience. The GRE may be waived if the overall undergraduate GPA is 3.80 or higher. GRE may be substituted by minimum MCAT score of 20, PCAT or score of 55% DAT score of 19.
* A language proficiency test for international applicants from non-English speaking countries or who have not earned a degree in the United States must provide a minimum IELTS score 18 of 6.5 taken within 2 years of the desired term of entry, a minimum PTE-A score of 53 or a minimum TOEFL score of 79 (internet-based test), 213 (computer-based test) or 550 (written test).
* Minimum of two (2) (Maximum of five) Letters of Reference (preferably from previous professors, employers within the field of science – all must be fairly recent – within the last five years of coursework or employment)
* A resume
* Interview (Optional)
* Final determination for program admission will be made by program director based on GPA, GRE, MCAT, PCAT or DAT scores, letters of recommendations, resume and personal statement combined.

**DEGREE PROGRAM REQUIREMENTS**

**Total Minimum Hours – 32 credit hours**

Core Requirements – 14 credit hours

Non-thesis – 18 credit hours (including electives)

Thesis – 18 credit hours (8 Thesis; 10 electives)

Electives – 10-18 credit hours (depending on thesis/non-Thesis Option)

**Core Requirements - 14 hours**

PHA 6146 3 Introduction to Nanotechnology

PHA 6119 3 Micro-/Nanoscale Drug Delivery systems

PHA 6118 3 Nanomaterials, BioMEMs and Nanodevices in Medicine

PHA 6147 3 Nanotechnology and Risk Management

PHA 6797 1 Scientific Writing and Communication

PHA 6277 1 Ethics in Pharmaceutical Practice and Research

**Non-Thesis Option – 18 hours**

Students select from either the general or entrepreneurship Tracks:

**General Track**

In addition to the core requirements, students complete 18 hours of electives (see below) and submit a written document based on a systematic review of a selected topic as assigned by the major professor.

**Entrepreneurship Track**

In addition to the core requirements, students complete the following courses/internship, and 9 hours of electives and submission of a written document based on a systematic review of a selected topic as assigned by the major professor.

PHA 6225 3 Invention, Innovation & Entrepreneurship

PHA 7001 6 Graduate Program Internship in Pharmacy – Internship is in a matched industry, institute or center,

 as approved by the major advisor

Electives 9 (See below)

**Thesis Option – 18 hours**

**Research Track**

In addition to the core requirements, students complete a thesis and 10 hours of electives

PHA 6971 8 Thesis

Electives 10 See Below

**Electives – 10 hours minimum**

Students take a minimum of 10-18 hours of electives depending on if in the thesis/non-thesis option.

PHA 6148 3 Nanoformulations and Nanopharmaceutics

PHA 6449 3 Pharmacogenomics- Current and Future Prospects

PHA 6222 3 Pharmacy Practice Management

GMS 6010 3 Personalized Medicine

PHA 6618 3 Principles of Geriatric Medicine

PHA 6622 3 Advanced Geriatric Pharmacy Care

PHA 6223C 3 Pharmacy Leadership

PHA 7930 1-3 Special Topics in Pharmacy

PHA 6533 1 Graduate Program Seminar in Pharmacy\*

PHA 6336 Regenerative Medicine

GMS 6201 Basis Medical Biochemistry

GMS 6605 Basic Medical Anatomy

GMS 6505 Basics Medical Pharmacology

GMS 6183 Clinical Research Methods

GMS 6440 Basic Medical Physiology

**Additional Requirements:**

**General Track**

\*Submission of e-Portfolio to complete program is required in this course:

PHA 6533 3 Graduate Program Seminar in Pharmacy

**Internship Track**

Students will experience hands-on training in specified area of discipline or project as approved by major advisor. They will be required to submit an evaluation of Satisfactory or greater from their project advisor to complete the Program in the final Internship in Pharmacy course:

PHA 7001 6 Graduate Program Internship in Pharmacy

**Thesis Track**

Submission of a written thesis on a specific project based on experimental data for approval is required to complete the program in the last Thesis course.

PHA 6971 8 Thesis

**Comprehensive Exam**

For students in the thesis track, the thesis defense will be used in lieu of a comprehensive exam. For non-thesis students, the successful completion of the portfolio will be used in lieu of a comprehensive exam.

**Possible Sequence**

**Fall – total 12 credit hours**

PHA 6146 - Intro to Nanotechnology 3 Cr

PHA 6797 - Scientific Writing and Communication 1 Cr

PHA 6277- Ethics in Pharmaceutical Practice and Research 1 Cr

Approved Electives 7 Cr

**Spring – total 12 credit hours**

PHA 6119 – Micro-/Nano Drug Delivery Systems 3 Cr

PHA 6118 – Nanomaterials, BioMEMs and Nanodevices in Medicine 3 Cr

PHA 6147 - Nanotechnology and Risk Management 3 Cr

Approved Electives 3 Cr

**Summer – total 8 credit hours**

PHA 6148 - Nanoformulations and Nanopharmacutics 3 Cr

Approved Electives 5 Cr

**COURSES**

 See <http://www.ugs.usf.edu/course-inventory/>