Master's Degree in Pharmaceutical Science
[Emphasis on Pharmaceutical Quality and Management]

1 Year Online, 9 courses, 36 Credits, Standard for U.S. Masters Degree

A professionally structured 9-course Master's Degree curriculum in Pharmaceutical Science, emphasizing CAPA, SOP development, technical report writing, quality control, and cutting-edge pharmaceutical technologies. The curriculum is designed for industry-readiness, focusing on regulatory compliance, practical operations, and innovation in manufacturing and quality systems. **Courses may be substituted or changed at any time, as curriculums undergo continued revision and updating**.

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Term 1
Pharmaceutical Quality Systems and cGMP Compliance. Covers ICH Q10, FDA cGMP (21 CFR Parts 210/211), EMA, and WHO standards. Emphasis on lifecycle quality systems and real case studies. 4 Credits.
Corrective and Preventive Action (CAPA) Systems. In-depth course on CAPA root cause analysis, deviation investigations, effectiveness checks, trend analysis, and FDA audit readiness. 4 Credits.
Standard Operating Procedures (SOPs) and Documentation Practices. Hands-on SOP writing, version control, document management systems, ALCOA+ principles, and error-proofing documentation. 4 Credits.
Term 2
Technical Report Writing and Regulatory Submissions. Instruction in writing batch records, validation protocols, deviation reports, annual product reviews, and structured writing for FDA/EMA submissions. 4 Credits.
Quality Control and Analytical Technologies in Pharma. Practical QC lab methods (HPLC, GC, UV-Vis, dissolution), out-of-specification (OOS) investigations, method validation, and lab data integrity. 4 Credits.
Pharmaceutical Validation and Qualification. Covers equipment qualification (IQ/OQ/PQ), process validation, cleaning validation, and computer system validation (CSV) aligned with GAMP 5. 4 Credits.
Term 3
Automation, Digitalization, and Advanced Drug Delivery in Pharmaceutical Manufacturing. Focus on MES, LIMS, SCADA, and digital batch records. Introduction to Pharma 4.0, data integrity, and real-time release testing (RTRT). Course includes liposomes, nanoparticles, microneedles, and targeted delivery systems. Applications in biologics, cancer, and CNS drug delivery. 4 Credits.
Quality Control, Sterile Manufacturing and Aseptic Processing. Practical QC lab methods (HPLC, GC, UV-Vis, dissolution), out-of-specification (OOS) investigations, method validation, and lab data integrity. Includes study of Cleanroom design, environmental monitoring, gowning, media fills, isolator technology, and compliance with USP <797> and <800>. 4 Credits.
Biopharmaceuticals and Cell & Gene Therapies. Focus on monoclonal antibodies, biosimilars, CAR-T, mRNA platforms, viral vector manufacturing, and ATMP quality systems. 4 Credits.