

**Special Courses of Doctor of Philosophy Degree in Pharmaceutical  
Sciences  
Pharmacy Practice Department**

**1- Specialized Courses: (18 cr. h)**

**First Semester (9 cr. h)**

No.	Course code	Courses	Credit hours	
			L	P
1	0602801	Advanced Pharmacotherapeutics II	3	--
2	0609801	Advanced Pharmacokinetics, Modeling and Simulation	3	--
3	0609802	Quality Improvement / Management in Health Care	2	--
4		Elective Course	1	--
<b>Total</b>			<b>9</b>	

**Second Semester**

No.	Course code	Courses	Credit hours	
			L	P
5	0609803	Pharmacoeconomic Aspects of Health Care	3	--
6	0609804	Monitoring Therapy in Critical Conditions	3	--
7	0609805	Pharmacy Practice Education (Theory and Practice)	2	--
		Elective Course	1	--
<b>Total</b>			<b>9</b>	

### Elective Courses

<b>No.</b>	<b>Course code</b>	<b>Courses</b>	<b>Credit hours</b>	
			<b>L</b>	<b>P</b>
1	0609806	Clinical Nutrition	1	--
2	0609807	Leadership and Change Management	1	--
3	0609808	Multidisciplinary Translational Research	1	--

**Course Description of Doctor of Philosophy Degree in  
Pharmaceutical Sciences  
Pharmacy Practice Department**

**First Semester (9 cr. h)**

Course Name	Credit hours		Code No.
	L	P	
<b>Advanced Pharmacokinetics, Modeling and Simulation</b>	3	--	0609801
<p><b>Description:</b> This course will provide students with the advanced knowledge and skills necessary for pharmacokinetic (PK) and toxicokinetic (TK) investigations in drug therapy and drug development, data analysis and for critical appraisal of the pharmacokinetic literature. The course will focus on mechanistic models for PKs (compartmental, physiological) and PDs (receptor theory) and combined PKs/PDs (immediate and delayed effects). Methods used in the investigation of drug interactions and population pharmacokinetics will be covered. The course will also introduce students to software packages to describe and simulate both “classical” and physiologically-based pharmacokinetic (PBPK) models for application in various contexts such as predictive kinetics in drug discovery and toxicokinetics in forensic, occupational, regulatory, clinical and environmental situations. Students will also have a chance to pursue a short assignment in an area of interest.</p> <ul style="list-style-type: none"> <li>• <a href="https://www.manchester.ac.uk/study/masters/courses/list/08749/msc-model-based-drug-development/course-details/">https://www.manchester.ac.uk/study/masters/courses/list/08749/msc-model-based-drug-development/course-details/</a></li> </ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Quality Improvement / Management in Health Care</b>	2	-	0609802
<p><b>Description:</b> This course will acquaint students with the concept of quality and the process of quality improvement across the health care system. The history and evolution of quality, its terms, principles, theories, and practices will be reviewed. Students will then be introduced to the main methods of improving quality, including but not limited to continuous Quality Improvement and Total Quality Management, and to the guidelines for implementing quality management and the continuous quality improvement processes in addition to tools necessary for Process Improvement and Customer Satisfaction. Finally, students will be introduced to the value proposition (a statement that explains what benefits a product or activity will deliver) as an integral component of quality improvement.</p> <ul style="list-style-type: none"> <li>• <a href="https://www.sph.umn.edu/site/docs/syllabi/Syllabi/2015/Spring/PubH-6765%20Continuous-Quality-Improvement-Methods_Spring-2015.pdf">https://www.sph.umn.edu/site/docs/syllabi/Syllabi/2015/Spring/PubH-6765 Continuous-Quality-Improvement-Methods_Spring-2015.pdf</a></li> <li>• <a href="https://www.washington.edu/students/crscat/hsmgmt.html">https://www.washington.edu/students/crscat/hsmgmt.html</a></li> </ul>			

## Second Semester (9 cr. h)

Course Name	Credit hours		Code No.
	L	P	
<b>Pharmacoeconomic Aspects of Health Care</b>	3	-	0609803
<b>Description:</b> The course will extend students' knowledge of pharmacoeconomic, a subset of health economics in understanding economic relationships regarding the cost of drug research, production, marketing, distribution, storage, pricing, and further use by the people. This would be of tremendous help in decision-making when evaluating the affordability and consequences of pharmaceutical products, devices and services. The course will also deal with some of the concepts involved in pharmacoeconomic analysis such as cost minimization, cost effectiveness, cost benefit, and cost utility analysis. This helps students in establishing accountability that the claims by a drug manufacturer or service provider are justified. <ul style="list-style-type: none"><li>• <a href="https://www.washington.edu/students/crscat/hsmgmt.html">https://www.washington.edu/students/crscat/hsmgmt.html</a></li></ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Monitoring Therapy in Critical Conditions</b>	3	-	0609804
<b>Description:</b> The course upgrades students' knowledge and skills of using a combination of data extrapolation and clinical intuition to design optimal therapeutic dosing plans. The course will focus on critically ill patients, each being distinct, with a differing pathogenesis and a rapidly changing physiology, which may further complicate treatment choices. The course will elaborate the development of an individualized therapeutic plan based on an understanding of the interrelationship of pharmacokinetics (PK), pharmacodynamics (PD), and pharmacogenetics (PGx) as well as selection of a dosing and monitoring regimen that balances available information with the highest likelihood of positive therapeutic outcomes and minimal adverse effects. <ul style="list-style-type: none"><li>• <a href="https://pharmacy.utoronto.ca/wp-content/uploads/2018/09/PHM353H1-Pharmacotherapy-in-Critical-Care.pdf">https://pharmacy.utoronto.ca/wp-content/uploads/2018/09/PHM353H1-Pharmacotherapy-in-Critical-Care.pdf</a></li></ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Pharmacy Practice Education (Theory and practice)</b>	2	-	0609805
<p><b>Description:</b> The aim of the course is to provide students as future pharmacy practice educators with an insight into aspects of curriculum design and re-design, methods of delivery and assessment, and incorporation of hands-on experience in the teaching using a team-based approach. Topics include mainly structural and professional factors to consider in the determination of curricular goals and vision, principles of curricular design, methods to identify relevant methods for active inter-professional curriculum delivery and student engagement within a real-practice scenario in addition to the design and evaluation of relevant pharmaceutical care and patient education models. This would help students identify future goals and visions that are relevant to shaping workforce development for national requirements.</p> <ul style="list-style-type: none"> <li>• <a href="https://fip.org/files/fip/Events/EAFP_3RD_AN_BOOKLET_V1.6.pdf">https://fip.org/files/fip/Events/EAFP_3RD_AN_BOOKLET_V1.6.pdf</a></li> </ul>			

### Elective Courses

Course Name	Credit hours		Code No.
	L	P	
<b>Clinical Nutrition</b>	1	-	0609806
<p><b>Description:</b> The clinical nutrition course is a multidisciplinary course which aims at improving the student knowledge of clinical, metabolic and molecular nutrition in relation to public health, nutrition-related diseases and clinical disorders. It is based on integrating the students' existing knowledge of physiology, biochemistry, metabolism and food science in a social, behavioral and clinical context. The course will cover fundamentals of nutrition, public health nutrition policy, managing change in eating behavior, nutrition support, nutrition management in different age populations, obesity and disease conditions. These will include mainly diabetes, gastroenterology, cardiovascular disease and cancer. Students will have a chance to practice nutrition support in a health care setting.</p> <ul style="list-style-type: none"> <li>• <a href="https://www.newcastle.edu.au/course/NUDI3220">https://www.newcastle.edu.au/course/NUDI3220</a></li> <li>• <a href="https://www.uio.no/studier/emner/medisin/nutri/ERN1010/index-eng.html">https://www.uio.no/studier/emner/medisin/nutri/ERN1010/index-eng.html</a></li> </ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Leadership and Change Management</b>	1	-	0609807
<p><b>Description</b> The course familiarizes students with the skills required for effective leadership, communication skills, and change management in the continually developing healthcare environment. The course is based on the need of competitive healthcare organizations, each representing a system of processes, people, and other resources, to be led effectively to achieve the desired outcome of high-quality, safe patient care. The course deals with change management as a structured formal approach to transitioning individuals, teams, and organizations from a current state to a desired future state, to fulfil or implement a vision. Topics covered include formulating and adopting effective vision, corporate strategies to achieve the vision, structures, procedures, and technologies to deal with change stemming from internal and external conditions within the practice. Emphasis will be placed on the leader's critical role in leading people to accept new processes, technologies, systems, structures, and values and to manage resistance to change.</p> <ul style="list-style-type: none"> <li>• <a href="http://www.utas.edu.au/courses/bus/units/bma701-leadership-and-change-management">http://www.utas.edu.au/courses/bus/units/bma701-leadership-and-change-management</a></li> <li>• <a href="http://www1.rmit.edu.au/courses/011632">http://www1.rmit.edu.au/courses/011632</a></li> <li>• <a href="http://www.uu.se/en/admissions/master/selma/kursplan/?kpid=22964andtype=1">http://www.uu.se/en/admissions/master/selma/kursplan/?kpid=22964andtype=1</a></li> </ul>			

Course Name	Credit hours		Code No.
	L	P	
<b>Multidisciplinary Translational Research</b>	1	-	0609808
<p><b>Description</b> The course aims at acquainting students with multidisciplinary translational research which involves the application of integrated knowledge from basic biology, drug delivery technologies, bio-nanotechnology, and clinical trials to techniques and tools that address critical medical needs for the specific purpose of improving health outcomes. The course is based on the integrated effort of a multidisciplinary team of scientists in biology and genetics, engineers, pharmacists, bio-informaticists, policymakers and others on translating useful information from laboratories to doctors' offices and hospitals, a "bench to bedside" bridge. Such multidisciplinary collaborations would result in diagnostic devices, advanced pharmaceutical products, powerful algorithms, business enterprises, and a culture of creating knowledge to answer complex medical questions.</p> <ul style="list-style-type: none"> <li>• <a href="https://www.ctsi.ufl.edu/education/courses/gms-7093-introduction-to-clinical-and-translational-research/">https://www.ctsi.ufl.edu/education/courses/gms-7093-introduction-to-clinical-and-translational-research/</a></li> <li>• <a href="https://www.ucdavis.edu/one-health/translational-research/">https://www.ucdavis.edu/one-health/translational-research/</a></li> </ul>			