**Medicinal Chemistry Department, School of Pharmacy, Mashhad University of Medical Sciences**

* **Medicinal Chemistry**
	+ **Drug design and synthesis**
		- **Small molecule drug design**
			* + **Anticoagulants**
				+ **Antibacterial**
				+ **Anticancer**

**Tubulin inhibitors**

**HDAC inhibitors**

**Kinase inhibitors**

* + - * + **Anti-Alzheimer**
			* **Total synthesis**
				+ **Imidazole derivatives**
				+ **Quinoline derivatives**
				+ **Coumarin derivatives**
				+ **Chalcone derivatives**
				+ **Other heterocycles**
			* **Structure characterization**
				+ **NMR**
				+ **Mass**
		- **Large molecule drug design**
			* **Peptide synthesis**
				+ **Dipeptides**
				+ **Nano-micelles**
			* **Protein expression and extraction**
			* **Aptamer selection and synthesis**
			* **Enzyme extraction**
			* **Small Molecule Drug Conjugate**
* **Targeted delivery of drugs and genes using nanocarrie**rs
	+ **Computational Chemistry**
		- **Protein engineering**
			* **Domain modification**
			* **Point mutation**
		- **3D structure modeling**
		- **Molecular docking**
		- **Molecular dynamics**
		- **QSAR and 3D QSAR**
		- **Virtual screening**
	+ **Biological evaluation**
		- **MTT Assay**
		- **Enzyme inhibitory Assay**
			* **HDAC inhibition activity**
			* **Kinase inhibition activity**
			* **Cholinesterase inhibition activity**
	+ **Drug and food analysis**
		- **HPLC (LC-UV, LC-MASS/MASS)**
		- **GC**
		- **Atomic absorption**
			* **Heavy metal analysis**
		- **CD spectroscopy**
			* **Protein secondary structure analysis**
		- **Spectro fluorimetry**
			* **Aptamer-based sensors**