Course-No.	Course Title	No. of CPs (according to ECTS):
Basics in Med.&Pharm.	*Basics in Medicine & Pharmacology*	*(4)*

Type of Course	Responsible for the course	Email / tel.-no.
Catch-up course	*Prof. Dorothee von Laer* *(Brigitte Held)*	***held@pharmchem.uni-frankfurt.de*** 069-798-29801

Course Description

1. Aims

Anatomy: PhD students should
- be able to recognise and identify histological specimen
- understand the structure-function-relationship of the cells, tissues and organs involved

General Medicine: PhD students should be able to
- connect the clinical picture to a diagnosis and name potential differential diagnoses
- design a basic diagnostic programme to support the diagnosis and evaluate significant results from these procedures, e.g. normal laboratory values and the disease-specific deviations
-derive the clinical picture from a pathogenic process based on a sound understanding of the pathophysiology and pathobiochemistry involved
- propose animal models for the analysis of pathomechanisms as well as of efficacy and toxicity of therapies
-propose standard therapies and explain their mechanism of action and major unwanted side effects

Pharmacology: PhD students should
- obtain a basic understanding of the general principles and molecular aspects of drug actions, ie. drug targets, receptors, signalling systems
- obtain a basic understanding of absorption, drug distribution, elimination, pharmakokinetics
- be able to name major representative drugs with their target disease, mode of action and side effects (see below: 2. content – pharmacology)

„Case histories" tutorial translational biomedicine: PhD students should be able to
- design a diagnostic programme from a clinical picture
- derive a diagnosis from the results of such a programme
- design the appropriate standard therapy
- select promising new therapeutic targets for a disease
- design a research and development programme for a novel therapeutic compound

2. Content

Anatomy:
- Tissues: different types of epithelium, nervous tissue (neurones, glia, nerve), muscle (somatic, striated), blood vessel, lymph node, bone marrow, blood smear;
- Organs: lung, heart, gastro-intestinal tract, pancreas, liver, spleen, kidney, urinary tract;
- Neuroanatomy: cellular, subcellular structure of the neuroappartus (neurones, glia, dendrites, synapses),
anatomical correlates of functional neuronal units, e.g. cortex, visual cortex, prefrontal cortex, putamen, amygdale, striatum, thalamus, Brocca, Wernicke,
neurophysiology: long-term potentiation, conditioning, concepts of learning and memory

General Medicine: diseases
- Haematological diseases: anaemia, MDS, leukaemias, lymphomas, platelet and coagulation disorders
- Female reproductive system: basic understanding of the biology of reproduction and development of the foetus; female cancers of the breast, the cervix, the uterus, the ovaries
- Gastro-intestinal diseases: Helicobacter pylori infection, gastritis, ulcer, malabsorption, inflammatory bowel disease, pancreatitis, liver cirrhosis, cancers of the pancreas, liver intestinal tract
- infectious diseases: understanding of the criteria used for the classification of viruses and bacteria; bacterial infections with Pneumococci, Staphylococci, Streptococci; bacterial diarrheas; tuberculosis, viral infections with CMV, EBV, HSV; major childhood infections; AIDS, hepatitis A, B, C
- metabolic disorders: basic knowledge of the central control of endocrine function; hypo-/hyperthyroidism; hypertension and the kidney; diabetes; metabolic syndrome
- rheumatology: understanding of the pathophysiology, genetic background, clinical appearance and diversity of arthritis
- renal diseases: basic understanding of renal physiology and tubular function, glomerulonephritis, renal failure
- cardiovascular diseases: hypertension, cardiac arrhythmias, ischaemic heart failure, heart failure
- respiratory diseases: asthma, emphysema, cystic fibrosis, lung cancer
- neurological disease: posttraumatic and post-apoplectic deficiencies of speech, understanding and motor activity; molecular basis of addiction and dependency; schizophrenia and depression; brain tumours

Pharmacology:
Rang et al, 6th edition: Section 1 General Principles, Ch. 1-8
Major representative drugs with their target disease, mode of action and side effects of the following groups:
- cholinergic and adrenergic transmission & drugs affecting the heart, the respiratory system (Rang et al, 6th edition, Section 2 Chemical Mediators, Ch. 9-12, Section 3 Drugs affecting major organ systems, ch. 18, 23)
- drugs affecting the vascular system, the kidney, haemostasis and thrombosis (Rang et al, 6th edition, Section 3, ch. 19-22, 24)
- chemical transmission and drug action in the CNS (Range eta l, 6th edition, Section 4, ch. 32-34)
- analgetics, antiphlogistics, pharmacological therapy of chronic inflammation and immune diseases, biopharmaceuticals (Range et al, 6th edition, Section2, ch. 13-17, Section 6, ch 55)
- drugs affecting the GI-tract, the endocrine pancreas, the control of blood glucose, obesity, lipid lowering drugs, and atherosclerosis (Rang et al, 6th edition, Section 3, ch. 20, 25-27)
- drugs used in the treatment of infections and cancer (Rang et al, 6th edition, Section 5, ch. 45-51)

3. Course modules

Module/Course title	type of module/ course	hours per week in a semester	CPs	mandatory (M)/ elective (e)/ catch-up (c)	characteris-tics
Basics in Medicine & Pharmacology	*V*	*35*	*(4)*	*c*	
Case Histories/tutorial translational biomedicine	*S, P*	*14*	*Incl. in CPs above*	*c*	

4. Description of teaching and learning format

Lectures: overview of topic with examples from the clinic;
Case histories weekend: working in small groups, problem-oriented learning

5. Qualification/condition for attendance

- *Science degree (Master, German Diploma)*

6. Applicability

For the understanding of the clinical implications needed for drug research, drug development and drug safety
Professional knowledge

7. Amount of work and credit points (CPs)

	weeks	hours/week	hours (total)	CPs
Lectures	*14*	*35*	*49*	
Case Histories/tutorial translational biomedicine	*1*	*14*	*14*	
Exam - test	*1*	*1*	*1*	
Preparation, follow-up for lecture	*14*	*1*	*14*	
Preparation for exam	*6*	*2*	*12*	
			90	4

8. Examination and marking of the course

Regular attendance (min. 80% + exam passed);
Attendance and participation at Case Histories Weekend
Test: MCQ, principles

9. Duration of the course

One semester (during term-time), 8:15 – 10:30, GSH

10. Number of participants

Min.: 10, max.: 25 (limited due to case histories/tutorial translational biomedicine)

11. Registration

Registration with Brigitte Held (via first-gradschool.de website when available)

12. Literature; lecuture notes

Books:
Rang et al, Pharmacology, Elsevier;
Kumar & Clark, Clinical Medicine, Elsevier

Lecture notes as pdf-download:
http://www.first-gradschool.de/courses/catch-up-courses/basics-in-medicine.php

hand-outs

13. Other

Medicine lectures recommended for pharmacists;
Catch-up course for graduates in biology, biochemistry, chemistry, bioinformatics, informatics, biotechnology (not mandatory for graduate in medicine, pharmacy, biomedicine, molecular medicine);
CPs do not count towards the FIRST certificate
Questions to Prof. Dorothee von Laer (Laer@em.uni-frankfurt.de)