

Pharmaceutical / Medicinal Chemistry

Lecture-Nr.: 53800

Type: lecture

Duration: over 4 semesters (2 lecture series by 2 professors): 2 x 2 hours (4 hours) per week (winter and summer semester)

Method of Assessment: written examination

ECTS Credit Points: 4 ECTS per semester; total 16 ECTS (over 4 semesters)

Topics:

Semester 1: Drugs acting on the CNS: antipsychotics, antidepressants, tranquilizers, anxiolytics, hypnotics, antiepileptics, drugs for the treatment of Parkinson's disease; psychostimulants; drugs acting on the autonomous nervous system, direct and indirect cholinergics, parasympathomimetics.

Semester 2: Parasympatholytics, spasmolytics; sympathomimetics (adrenergics), sympatholytics (adrenergic blockers), antisympathotonics; antiasthmatics; calcium channel blockers, other antihypertensives and vasodilators, drugs acting on the renin-angiotensin-aldosterone system (ACE inhibitors, renin inhibitors, angiotensin receptor antagonists), NEP inhibitors; antianginal drugs, nitric oxide donors, guanylyl cyclase stimulators, PDE inhibitors, other vasodilators.

Semester 3: Antiarrhythmics, positive inotropic drugs, diuretics, drugs for the treatment of hyperlipoproteinemias, histamine receptor ligands, antiulcer drugs, 5-HT receptor agonists and antagonists; laxatives and antidiarrhoeal drugs.

Semester 4: Chemical carcinogens; drugs for the treatment of cancer, principles, alkylating agents, platinum compounds, DNA intercalators, antimetabolites; histone deacetylase and DNA methyl transferase inhibitors; topoisomerase I and II inhibitors, tubulin inhibitors, kinase inhibitors, anticancer drugs with other mechanisms of action; endocrine/hormonal cancer therapy; biological response modifiers; immunosuppressants (cytotoxic, calcineurin- and mTOR-inhibiting drugs, sphingosin phosphate receptor ligands, etc.).

Literature:

1. Beale/Block (Eds.) Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry, Lippincott, Philadelphia
2. Williams/Lemke, Foye's Principles of Medicinal Chemistry, Lippincott, Philadelphia
3. Brunton/Chabner/Knollman, Goodman-Gilman's The Pharmacological Basis of Therapeutics, McGraw-Hill Professional, New York
4. Wermuth (Ed.), The Practice of Medicinal Chemistry, Elsevier, Amsterdam
5. Triggle/Taylor (Eds.), Comprehensive Medicinal Chemistry, Elsevier, Amsterdam
6. Klebe, Wirkstoffdesign, Entwurf und Wirkung von Arzneistoffen, Spektrum Akademischer Verlag, Heidelberg
7. Steinhilber, Schubert-Zsilavecz, Roth, Medizinische Chemie, Targets und Arzneistoffe, Deutscher Apotheker-Verlag, Stuttgart
8. Mutschler/Geisslinger/Kroemer/Menzel/Ruth, Arzneimittelwirkungen, Wissenschaftliche Verlagsgesellschaft, Stuttgart
9. Eger/Troschütz/Roth, Arzneistoffanalyse, Deutscher Apotheker Verlag, Stuttgart.

10. European Pharmacopoeia
11. Voet/Voet, Biochemistry, Wiley, New York

Contact Information:

Prof. Dr. Armin Buschauer

Department of Pharmaceutical and Medicinal Chemistry II

Phone +49 941 943-4827

E-mail Armin.Buschauer@ur.de