



UNIVERSITAS NEGERI YOGYAKARTA
 FACULTY OF MATHEMATICS AND NATURAL SCIENCES
 DEPARTMENT OF CHEMISTRY
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Bachelor of Science in Chemistry

MODULE HANDBOOK

Module name:	Pharmaceutical Chemistry						
Module level, if applicable:	Undergraduate						
Code:	KIM 6216						
Sub-heading, if applicable:	-						
Classes, if applicable:	2						
Semester:	4 th						
Module coordinator:	Prof. Dr. Nurfina Aznam						
Lecturer(s):	Prof. Dr. Nurfina Aznam						
Language:	Bahasa Indonesia and English						
Classification within the curriculum:	Compulsory Subject						
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 structured activities and 120 individual study per week						
Workload:	Total workload is 90,67 hours per semester which consists of 100 minutes lectures, 120 structured activities and 120 individual study per week for 16 weeks						
Credit points:	2 SKS (3 ECTS)						
Prerequisites course(s):	Biochemistry						
Course Outcomes	<p>After taking this course, the students are expected to be able to:</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 10%;">CO1</td> <td>Explain the pharmacokinetic-pharmacodynamic principles of drugs, as well as the structure and activity of drugs for understanding pharmacy in society</td> </tr> <tr> <td>CO2</td> <td>Applying the concepts of the influence of how drug administration as a technique for solving pharmaceutical problems in the community</td> </tr> <tr> <td>CO3</td> <td>Presenting the idea of innovation in the development of traditional medicines as pharmaceutical chemical research innovations</td> </tr> </table>	CO1	Explain the pharmacokinetic-pharmacodynamic principles of drugs, as well as the structure and activity of drugs for understanding pharmacy in society	CO2	Applying the concepts of the influence of how drug administration as a technique for solving pharmaceutical problems in the community	CO3	Presenting the idea of innovation in the development of traditional medicines as pharmaceutical chemical research innovations
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CO2	Applying the concepts of the influence of how drug administration as a technique for solving pharmaceutical problems in the community						
CO3	Presenting the idea of innovation in the development of traditional medicines as pharmaceutical chemical research innovations						
Content:	<p>Learn about the basic concepts of the development of drug history, methods of administration of drugs, pharmacokinetic principles, pharmacodynamic principles, drug biopharmaceutical aspects, main effects and side effects of drug use, chemical structure of drug molecules, drug-receptor structure interactions and activity the biology, the relationship of structure and drug activity.</p> <ul style="list-style-type: none"> • Introduction • History of drug development • Kinds of dosage forms and drug classes • Systematic effects and local effects • Transport system, absorption, biotransformation, 						

	<p>distribution and excretion</p> <ul style="list-style-type: none"> • Plasma concentration • Dosage and combustion scheme • The mechanism of action of the drug and therapeutic effects • Effects of unwanted drugs • Toxic effects • Tolerance, habituation, addiction • Bacterial resistance • the carrier group Biofunctional functional group • haptoforic and pharmacophoric groups • Acid-base properties of drugs • Degree of drug ionization • Drug interaction • Receptor side theory • Suppresses the central nervous system 															
Study / exam achievements:	<p>Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude. The final mark will be weight as follow:</p> <table border="1" data-bbox="627 1234 1418 1480"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO1, CO2, CO3.</td> <td>a. Participation b. Assignment c. Mid-term exam d. Final Exam</td> <td>Presentation / written test</td> <td>5% 25% 30% 40%</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3.	a. Participation b. Assignment c. Mid-term exam d. Final Exam	Presentation / written test	5% 25% 30% 40%	Total				100%
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1	CO1, CO2, CO3.	a. Participation b. Assignment c. Mid-term exam d. Final Exam	Presentation / written test	5% 25% 30% 40%												
Total				100%												
Forms of media:	Handout, Board, LCD Projector, Laptop/Computer, Module															
References:	<p>A. OlgaMalev MarioLovrić Draženka Stipaničeve Siniša Repece, Dalma Martinović-Weigeltf Davor Zanellab Tomislavlvanković ValneaSindičić Đuretecg Josip Barišićh Mei Lii Göran Klobučar 2020, Toxicity prediction and effect characterization of 90 pharmaceuticals and illicit drugs measured in plasma of fish from a major European river (Sava, Croatia), <i>Environmental Pollution</i> vol 266</p> <p>B. Cormac Kennedy Linda Brewer David Williams, 2020, Drug interactions, <i>Medicine</i> , vol 48, issue 7</p> <p>C. Zhenyu Sui, Qing Li, Lin Zhu, Zhenru Wang, Chunxiao Lv, Ran Liu, Huarong Xu, Bosai He, Zuoqing Li, Kaishun Bi,2017,An integrative investigation of the toxicity of</p>															

	<p>Aconiti kusnezoffii radix and the attenuation effect of its processed drug using a UHPLC-Q-TOF based rat serum and urine metabolomics strategy, <i>Journal of Pharmaceutical and Biomedical Analysis</i>, Volume 145, Pages 240-247, https://doi.org/10.1016/j.jpba.2017.06.049.</p> <p>D. Jill Barber, Chris Rostron 2013, <i>Pharmaceutical Chemistry (Integrated Foundations of Pharmacy)</i>. Oxford</p> <p>E. Grushevskaya, L.N., Sergeeva, M.S., Gaevaya, L.M. et al. Development of a Method for Determination of Related Impurities in GML-3 Drug Substance: A New Compound with Anxiolytic Properties. <i>Pharm Chem J</i> (2020). https://doi.org/10.1007/s11094-020-02284-x</p> <p>F. Filatova, A.V., Turaev, A.S. & Vypova, N.L. Fludigel Composition Development and its Anti-Inflammatory and Anti-Allergic Properties. <i>Pharm Chem J</i> (2020). https://doi.org/10.1007/s11094-020-02281-0</p>
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PLO and CO mapping

	PLO										
	Attitude	General Skill			Knowledge				Specific Skill		
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	
CO1					√						
CO2								√			
CO3										√	