

ENZYME AND DRUG DEVELOPMENT

Module designation	<i>Enzyme and Drug Development</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Prof. Dr. apt. Siswandono, MS. (Course Coordinator) 2. Prof. Dr. apt. Juni Ekowati, MSi. 3. Dr. apt. Tri Widiandani, S.Si., Sp.FRS.
Language	<i>Bahasa Indonesia</i>
Relation to curriculum	<i>Compulsory / elective / specialisation</i>
Teaching methods	<i>lecture, discussion, assignment</i>
Workload (incl. contact hours, self-study hours)	<i>(Estimated) Total workload: Contact hours (structured activities.): 90,67 hours Private study including independent learning activities: 90,67 hours</i>
Credit points	<i>2 SCU / 6 ECTS</i>
Required and recommended prerequisites for joining the module	NA
Module objectives/intended learning outcomes	<p>Students are:</p> <p>LO1: Able to realize excellence based on religious morals (excellence with morality), able to work together, and show a responsible attitude to work in their field of expertise independently.</p> <p>LO2: Able to internalize the spirit of independence, struggle, and entrepreneurship.</p> <p>LO5: Able to access and review information through an Information and Communication Technology (ICT) system, decide on a specific subject of study, maintain the feasibility of implementing research designs, conduct research, analyze data, conclude research results comprehensively, and create strategic issues based on the study that reflect the latest updates in the field of pharmaceutical sciences, and communicate them in the media and scientific forums at the national and international level through an interdisciplinary or multidisciplinary approach in the form of a thesis or other equivalent forms.</p> <p>LO6: Able to make decisions in the context of solving problems related to science and technology development based on analytical or experimental studies through collaboration with colleagues, colleagues in institutions and research communities at both national and international levels and utilizing research results for the benefit of the user and other communities.</p> <p>LO8: Able to carry out drug designs through the synthesis of bioactive compounds based on the structure-activity relationship.</p> <p>LO13: Able to design drug development both from natural products and/or synthetic compounds by considering the biological mimicry system.</p>

Content	The Enzyme and Drug Development Course covers topics including the scope and benefits of enzyme inhibitors in drug development, the role of bioinformatics in drug development, enzymes and receptors, rational approaches in drug discovery based on enzyme inhibition, examples of drugs whose mechanism of action is enzyme inhibitors, and their applications in drug development.
Exams and assessment formats	<i>Take-home written assignments</i>
Study and examination requirements	<i>the final grade in the module is composed of 30% discussion, 30% presentation, 30% take-home assignments, 10% in-class participation and soft-skills assessment. Students must have a final grade of 70% or higher to pass</i>
Reading list	<ol style="list-style-type: none"> 1. <i>Siswandono, ed., 2016. Kimia Medisinal I, Edisi Kedua. Sura-baya: Airlangga University Press.</i> 2. <i>Smith, H.J., 2006. Smith and Williams' Introduction to the Principles of Drug Design and Action. 4th ed, Boca Raton: Taylor & Francis Group, LLC.</i> 3. <i>Grunwald, P., 2019. Pharmaceutical Biocatalysis, Fundamentals, Enzyme Inhibitors, and Enzymes in Health and Diseases. Boca Raton: Taylor & Francis Group, LLC.</i> 4. <i>Argikar, U.A., Nagar, S., Tweedie, D.J., 2021. Enzyme Kinetics in Drug Metabolism, Fundamentals and Applications. New York: Springer Science+Business Media, LLC.</i> 5. <i>Copeland, R.A., 2013. Evaluation of Enzyme Inhibitors in Drug Discovery, A Guide for Medicinal Chemists and Pharmacologists, 2nd ed. Hoboken: John Wiley & Sons, Inc.</i> 6. <i>Sharma, R. 2012. Enzyme Inhibition and Bioapplications. Rijeka: InTech</i>