

ORGANIC SYNTHESIS

Module designation	<i>Organic Synthesis</i>
Semester(s) in which the module is taught	2
Person responsible for the module	1. Drs. Hadi Poerwono, MSc., Ph.D. (Course Coordinator) 2. Prof. Dr. Juni Ekowati, Apt., M.Si.
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	Students are: 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 LO2: Able to internalize the spirit of independence, struggle, and entrepreneurship LO4: Able to develop a pharmaceutical professional performance with analytical acumen in solving pharmaceutical problems and managing research in the pharmaceutical field related to national and global systems and policies, both inter and inter-disciplinary approaches. 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. LO8: Able to carry out drug designs through the synthesis of bioactive compounds based on the structure-activity relationship. LO13: Able to design drug development both from natural products and/or synthetic compounds by considering the biological mimicry system.
Content	The organic synthesis course provides the understanding, scope, and importance of synthesis in drug development, history of drug synthesis, retrosynthetic analysis, latent polarity and functional group interconversion, strategies in synthesis planning, chemoselectivity, regioselectivity, stereoselectivity, and their application in total synthesis and partial synthesis (semisynthesis) of bioactive compounds.

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>Smith, M.B. 2020. March's Advanced Organic Chemistry, 8th ed. New Jersey: Wiley.</i> 2. <i>Clayden, J.; Greeves, N.; Warren, S. 2012. Organic Chemistry, 2nd ed. Oxford University Press.</i> 3. <i>Fryhle, C.B.; Snyder, S.A.; Solomons, T.W.G. 2016. Organic Chemistry, 10th ed. New York: Wiley.</i> 4. <i>McMurry, J. 2016. Organic Chemistry, 9th ed. Boston: Cengage Learning.</i> 5. <i>Johnson, D.S.; Li, J.J. 2007. The Art of Drug Synthesis. New Jersey: John Wiley & Sons.</i>