

	<p style="text-align: center;">UNIVERSITAS PADJADJARAN FACULTY OF MATHEMATICS AND NATURAL SCIENCES MASTER PROGRAM IN CHEMISTRY</p>		<p>COURSE CODE: D20B.229</p>
Module designation	Biomembrane, Transport, and Signal Transduction		
Semester(s) in which the module is taught	2		
Lecturers	1. Prof. Toto Subroto 2. Muhammad Yusuf, Ph.D.		
Medium of instruction	English and Indonesian		
Relation to curriculum	Mandatory Elective Courses Biomolecular Health and Food Sciences Master of Science in Chemistry		
Teaching methods	Lecture and discussion		
Workload	Total workload: 53.42 hours CLASS Lecture : 18.36 hours Tutorial : 3.35 hours Assignment : 1 hours Assesment : 5.01 hours Independent Study : 26.7 hours		
Credit points	2 (2-0) 2 Credits = 3.62 ECTS		

Required and recommended prerequisites for joining the module	<ol style="list-style-type: none"> 1. Structure and Function of Biomolecules 2. Metabolism and Genetics Information
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Module objectives/intended learning outcomes	<ol style="list-style-type: none"> 1. The students are capable of explaining the concept of signal transduction: principles of signal transduction; types of ligand signal transduction on the cell surface and intracellular (C3) 2. The students can describe the three main classes of signal transduction receptors: ion channel-linked receptors; G protein-coupled receptors; enzyme-linked receptors, specifically, receptor tyrosine kinases. (C3) 3. The students can analyze processes related to membrane transport and signal transduction. (C3)
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Contents	Signal transduction studies how the principles of signal transduction occur, the types of ligand-receptor signal transduction that take place on the cell surface and intracellularly, and the three main classes of signal transduction receptors: ion channel-linked receptors, G protein-coupled receptors, and enzyme-linked receptors (tyrosine kinase receptors).
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Examination forms	Test, Presentation, and Assignment
Study and examination requirements	Minimum attendance at lectures is 80%. Final score is evaluated based on quiz (10%), individual assignment (20%), mid semester exam (35%), and end semester exam (35%).
Reading lists	<ol style="list-style-type: none"> 1. Nelson, D.L. & Cox, M.M., 2013, Lehninger Principles of Biochemistry, W. H. Freeman and Company 2. Berg, J.M., Tymoczko, J.L. & Stryer, A. (2006), Biochemistry, Freeman, Toronto 3. Mathews, C.K. & Van Holde, K.E. (2000), Biochemistry, Benjamin/Cummings, CA.

