	UNIVERSITAS PADJADJARAN FACULTY OF MATHEMATICS AND NATURAL SCIENCES MASTER PROGRAM IN CHEMISTRY	COURSE CODE: D20B.303

Module designation	Molecular Mechanism of Diseases
Semester(s) in which the module is taught	2
Lecturers	Prof. Dr. Iman P. Maksum Dr. Shabarni Gaffar
Medium of instruction	English and Indonesian
Relation to curriculum	Mandatory elective course Biomolecular Health and Food Sciences Master of Science in Chemistry
Teaching methods	Lecture and discussion
Workload	Total workload: 53.42 hours **CLASS** Lecture : 20.03 hours Tutorial : 3.35 hours Assignment : 1 hour Assessment : 3.34 hours Independent Study : 26.7 hours
Credit points	2 (2-0) 2 Credits = 3.62 ECTS

Required and recommended prerequisites for joining the module	1. Structure and Function of Biomolecules 2. Metabolism and Genetics Information

Module objectives/intended learning outcomes	1. Understanding the molecular mechanisms of DM (Diabetes Mellitus) includes: genetic mechanisms, molecular signaling, metabolic integrity, and oxidative stress, especially in humans, as well as the development of effective treatments based on molecular target therapeutic approaches. (C3) 2. Understanding the molecular mechanisms of cancer includes: genetic mechanisms, molecular signaling, metabolic integrity, and oxidative stress, especially in humans, as well as the development of effective treatments based on molecular target therapeutic approaches. (C3) 3. Understanding infectious diseases (Case study: Influenza), infection mechanisms, prevention and treatment, as well as drug and vaccine resistance. (C3)

Contents	The definition of the molecular mechanisms of diseases includes: genetic mechanisms, molecular signaling, metabolic integrity, and oxidative stress, especially in humans, such as diabetes mellitus and cancer; the development of effective treatments based on molecular target therapeutic approaches; infectious diseases (Case study: Influenza), infection mechanisms, prevention and treatment, as well as drug and vaccine resistance.

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 (15%), mid semester exam (45%), and end semester exam (30%).
Reading lists	1. Watkins, P.J. (2003), ABC of Diabetes. 5th ed. MJ Books. London. 2. Poretsky, L. (ed). (2010), Principles of Diabetes Mellitus, 2nd ed., Springer. New York 3. Weber, G.F. (2007), Molecular Mechanisms of Cancer, Springer. Dordrecht 4. Pecorino, L. (2012), Molecular Biology of Cancer: Mechanisms, Target and Therapeutics. 3rd ed., Oxford University Press. Oxford