

MODULE HANDBOOK

Module Name	Metabolism and Pathways of Genetics Information
Module level	Bachelor
Abbreviation, if applicable	8420403034
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	6 st /Third Year
Module coordinator(s)	Prof. Dr. Lenny Yuanita, M.Kes
Lecturer(s)	Prof. Dr. Rudiana Agustini, M.Pd ; Dr. Prima Retno Wikandari, M.Si ; Dr. Nuniek Herdyastuti, M.Si, ; Mirwa Adi Prahara, M.Si
Language	Indonesian
Classification within the curriculum	Compulsory Course
Teaching format/class hours per week during the semester:	3 hours lecturers (50 min per hours)
Workload:	Total workload 126 hours per semester which consists of 3 hours lecture, 3 hours structured activities, 3 hours 3 hours 3 hours 3 hours individual activities, and 14 weeks per a semester (4.2 ECTS)
Credit points:	3 SCU
Prerequisites course(s):	-
Targeted learning outcomes:	<p>CLO 1 Mampu memecahkan masalah IPTEKS di bidang kimia yang umum dan dalam lingkup sederhana seperti identifikasi, analisis, isolasi, transformasi, dan sintesis mikromolekul, melalui penerapan struktur, sifat, perubahan molekul, energy maupun kinetiknya</p> <p>CLO 2 Mampu memecahkan masalah IPTEKS di bidang biokimia, khususnya yang terkait metabolisme dan pengolahan informasi genetika, berdasarkan kajian ilmu dan metode analisis dan sintesis, serta penerapan teknologi yang relevan.</p> <p>CLO 3 Memiliki pengetahuan tentang: a) metabolisme dan regulasi biomolekul karbohidrat, lipida, dan protein, b) proses transfer elektron dalam fotosintesis serta c) proses pengolahan informasi genetika.</p> <p>CLO 4 Menunjukkan sikap bertanggung jawab pekerjaannya dalam pembelajaran Biokimia II secara mandiri</p>
Content:	<p>Aspek metabolisme dan perannya dalam sel hidup : Aspek makro dan mikro metabolisme, siklus energi Katabolisme Karbohidrat : Glikolisis, Glikogenesis, reaksi anaerob (Fermentasi), siklus asam sitrat, Fosforilasi oksidatif, Perhitungan ATP, Glukoneogenesis, Glikoneogenesis, Pengendalian katabolisme</p>

	<p>Fotosintesis : Reaksi gelap – terang, Siklus Calvin, Siklus Hatch – Slack</p> <p>Katabolisme asam amino dan Purin - Pirimidin : Jalur intermediet katabolisme asam amino, reaksi transaminase, jalur sekresi nitrogen pada ammonotelik, oreotelik, dan uricotelic, siklus urea. Sintesis asam amino dari ammonium melalui 3 reaksi enzymatic dan regulasinya, sintesis asam amino dari reaksi transaminase glutamate dengan asam - keto, Degradasi dan sintesis Purin – Pirimidin</p> <p>Katabolisme Lipida : Katabolisme asam lemak jenuh, Katabolisme asam lemak tak jenuh, α dan ω oksidasi, ketogenesis dan pengendalian. Lipogenesis, anabolisme pada lemak khusus, pengendalian</p> <p>Aliran Informasi Genetik : Replikasi, Transkripsi, Translasi dan Lac Operon</p>
Study / exam achievements:	<p>Students are considered to be competent and pass if at least get 55</p> <p>Final score is calculated as follows: 20% participation + 30% assignment + 20% middle exam (UTS) & 30% final exam (UAS)</p> <p>Table index of graduation</p> <ul style="list-style-type: none"> • A = 4 (85 - 100) • A- = 3,75 (80 - 85) • B+ = 3,5 (75 - 80) • B = 3 (70 - 75) • B- = 2,75 (65 - 75) • C+ = 2,5 (60 - 65) • C = 2 (55 - 60) • D = 1 (40 - 55) • E = 0 (0 - 40)
Media:	Computer, LCD, White board
Learning Methods	Individuals assignment, group assignment, discussion, presentation
Literature:	<ol style="list-style-type: none"> 1. Ayala, F.J. and Kieger, J.A. 1984. <i>Modern Genetics</i>. California: The Benyamin Cummings Publishing Company Inc.. 2. Koolman, J. and Roehm, K.H. 2005. <i>Color Atlas of Biochemistry</i>. 2nd edition. New York: Stutgard. 3. Lehninger. 1988. <i>Dasar-Dasar Biokimia</i> (I,II,III). Jakarta: Erlangga. 4. Mathew,C.K., van Holde, K.E., Ahern, K.G. 1999. <i>Biochemistry</i>. San Fransisco: Addison-Wesley Pub. Co. 5. Murray R.K., Granner R.K., Mayes P.A., and Rotwell V.W. 2003. <i>Harper's Illustrated Biochemistry</i>, The McGraw-Hill Companies 6. Nelson, D.L. and Cox, M.M. 2003. <i>Lehninger Principle of Biochemistry</i>. 4th edition. Madison: University of Winconsin. 7. Styer, L., 1988. <i>Biochemistry</i>. New York: W.H. Freeman and Company

Note	<p>Metabolism and Pathways of Genetics Information covers the activities of theory and presentation.</p> <p>Total ECTS = ((total hours workload x 50 min)/60 min)/25 hours</p> <p>Each ECTS is equals wits 25 hours</p>
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