



THE MODULE HANDBOOK

FACULTY OF BIOLOGY

Enzymology

Module code	BID 20103IUP
Module level	2 nd year of undergraduate program in Biology
Abbreviation, if applicable	-
Sub-heading, if applicable	-
Courses included in the module, if applicable	-
Semester/ term	Even
Module coordinator(s)	Dr. Tri Rini Nuringtyas, M.Sc.
Lecture(s)	1. Dra. Rarastoeti Pratiwi, M.Sc. 2. Dr. Yekti Asih Purwestri, M.Si 3. Woro Anindito Sri Tunjung, M.Sc., Ph.D.
Language	English
Classification within the Curriculum	Elective
Teaching format/ class hours per week during the semester	1. This course is organised into 1 class and planned to have 14 teaching weeks and 2 weeks of examination. 2. Delivery style: teacher and student centered learning.
Workload	Estimated working hour: 2 credits of theory.
Credit points	2-0 credits
Requirements	Technical Biochemistry (BID 20102IUP)
Learning goals/ competencies	1. Knowledge and understanding <ol style="list-style-type: none">Enzyme as biomolecule and its function in biological system.Understanding of enzyme nomenclature and numbering system, classification of enzymes, structure and function enzyme as biocatalisator, enzyme kinetics and its regulation, biosynthesis and turn over enzyme, enzyme isolation and purification methods.Understanding of the role and application of enzymology in various fields (agriculture, animal husbandary, health, phamaceutical, food and environmental science). 2. Ability/intelectual skill <ol style="list-style-type: none">To apply, integrate and synergize enzymology into various fields of science.



THE MODULE HANDBOOK

FACULTY OF BIOLOGY

	<p>b. To be able to understand the journals in enzymology.</p> <p>3. Practical skill</p> <ol style="list-style-type: none">To analyze the results of research in the particular topics of enzyme.To use scientific references to analyze the results of experiments related to enzyme.To make scientific report effectively. <p>4. Managerial and transferable skill</p> <ol style="list-style-type: none">To communicate effectively, whether written, oral, and using images especially in the field of enzymology.Working in group.To apply and integrate enzymology into biology and its branch.To manage the time and resources effectively and efficiently. <p>5. Attitude</p> <ol style="list-style-type: none">Has curiosity.Appreciate the originality of ideas, concepts and other inventions.Pay attention to and be able to appreciate the views and opinions of other members.
Content	<p>Enzymology course is divided into 14 topics given in two parts, 8 topics in the form of theories related to an enzyme that is given using Teacher Learning Center method. The following part of 6 topics, the students obtain many knowledge about various application of enzymes in the fields of agriculture, animal husbandary, food, health, pharmaceuticals and environmental science and deliver the presentations based on recent journal or review related to enzymes. Enzymology course discusses the molecular structure of the enzyme in conjunction with the enzyme functions as biocatalisator of various metabolic reactions; Classification and nomenclature of enzymes; biosynthesis and turnover of enzymes; isoenzymes; regulation of enzyme activity; isolation, purification and enzyme assay; enzyme kinetics; the role and application of enzymes in various fields of life sciences.</p>
Study/ exam achievements	<ol style="list-style-type: none">Midterm: 35 %Final examination: 30 %Task/home works: 10 %Presentation and group discussion: 15 %Individual of review paper: 10 %



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Forms of media	Media which used in the delivery are LCD projector, laptop, whiteboard, and worksheet for quizzes.
Literature	<ol style="list-style-type: none">1. Campbell, M.K. and S. O. Farrell. 2003. <i>Biochemistry</i>. Fourth edition. Thomson Learning, Inc. United States.2. Dixon, M. and E.W. Webb. 1979. <i>Enzymes</i>. 3rd edition. Longmann Groups Limited. London.3. Michal, G. 1999. <i>Biochemical Pathways : An Atlas of Biochemistry and Molecular Biology</i>. John Wiley and Sons, Inc., New York.4. Alberts, B., A. Johnson, J. Lewis, M. Raff, K. Roberts and P. Walter. 2008. <i>Molecular Biology of the Cell</i>. Fifth edition. Garland Science, New York.5. Nelson, D.L. and M.M. Cox. 2000. <i>Lehninger Principles of Biochemistry</i>. 3rd edition. Worth Publishers. New York.6. Price, N.C. and L. Stevens. 1984. <i>Fundamentals of Enzymology</i>. Oxford. New York.