



**UNIVERSITAS NEGERI YOGYAKARTA**  
**FACULTY OF MATHEMATICS AND SCIENCES**  
**DEPARTMENT OF BIOLOGY EDUCATION**

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**Bachelor of Science in Biology**

**MODULE HANDBOOK**

Module name:	Laboratory Work in Endocrinology
Module level, if applicable:	Undergraduate
Code:	BIO6151
Sub-heading,if applicable:	-
Classes,if applicable:	-
Semester:	Even
Module coordinator:	Dr. Heru Nurcahyo
Lecturer(s):	Ir. Suhandoyo, M.Si
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 minutes structured activities, and 120 minutes individual studyper week
Work load:	Total workload is 91 hours per semester which consists of 100 minuteslectures, 120 minutes structured activities, and 120 minutes individual study per weekfor 16 weeks.
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	General Biology
Perogram Learning Outcomes (PLO):	<p>4. Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underlie the concepts of related sciences</p> <p>6. Being adaptive, creative, innovative in applying the concepts of Biology and other related fields</p> <p>9. Being able to work and create jobs/being an entrepreneur in the field of Biology</p> <p>11. Possessing scientific skills to support the ability to speak in local, national, and international forums</p>
Course Outcomes (CO):	<p>After taking this course, the students have ability to:</p> <p>CO1. Identify the concept of Kontrak practice Penjelasan awal Berbagai Model the ojects of endocrinology experiment</p> <p>CO2. Understand the Animal model for endocrynology research: study the article "On The Mechanism of Trophic Hormone Action in The Ovary"</p> <p>CO3. Elaborate the study of "Surgical Methods: Organ culture, tissue culture methods"</p> <p>CO4. Analyze the "The measurement of hormone level using Radioimmuno-assay (RIA) methods"</p> <p>CO5. Apply the principles of biosynthesis "peptide hormone, amino acid hormone and steroide hormone" and its application on daily live</p> <p>CO6. Elaborate "The measurement of hormone level using <i>Enzyme Linkage Immunosorbent Assay (ELISA)</i> methods"</p> <p>CO7. Explain the Mechanism action of various hormone: target</p>

	<p>cell, reseptor specific, second messenger, and G-proteins</p> <p>CO8. Explain the measurement of hormone level using of "Histological-Cytological Studies: Immunocytochemistry (IHC)" Methods</p> <p>CO9. Study the application of the concept of pituitari anterior hormones: Gonadotropin Hormone (GnH), GH, PL, FSH, LH, TSH, ACTH, MSH, Endorphins and its implication from research report in journal.</p> <p>CO10. Elaborate the concept of "Peran cAMP dalam mekanisme kerja FSH" Posterior Pituitary hormones: ADH, oxytocin and its implication</p> <p>CO11. Describe the definition of research methode of endocrinology including: kind of research, research desing, research methods, rseacrh variable, instrumen to measurement, research procedure, data analysis.</p> <p>CO12. Communicate the result of "endocrinology research proposal" as a Individual Projects including many types of hormones: epinepherine &amp; norepinephrine, glucocorticoids; aldosterone; and testosterone.</p>															
<p>Content:</p>	<p>This course discusses the awareness of endocrinology problems, interaction between structures and its function in biology system, and its application on daily live.</p> <p>Matakuliah Endokrinologi ini memiliki tujuan utama mengkaji dan menjelaskan teknologi endokrinologi yang meliputi: pengertian endokrinologi, manfaat, aplikasi, dan produk-produk yang dihasilkan.</p>															
<p>Study/examachievements:</p>	<p>The final mark will be weight as follow:</p> <table border="1" data-bbox="628 1128 1445 1373"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO1 to CO12</td> <td>Observed attitudes , knolwedge, and skills</td> <td>Survey, test, rubrics and manuals</td> <td>100%</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1 to CO12	Observed attitudes , knolwedge, and skills	Survey, test, rubrics and manuals	100%	Total				100%
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1	CO1 to CO12	Observed attitudes , knolwedge, and skills	Survey, test, rubrics and manuals	100%												
Total				100%												
<p>Forms of media:</p>	<p>Real objects, model, multimedia</p>															
<p>References:</p>	<p>A. Hadley, Mac. E. (1992). <i>Endocrinology</i>. 3<sup>rd</sup> ed. USA: Prentice Hall Inc.</p> <p>B. Arey, L.B., William Burrows, Greenhill, J.P., and Hewitt, R.M., (1961). <i>Dorland's Illustrated Medical Dictionary</i>. 23 ed. W.B. London: Saunders Company.</p> <p>C. Baret, J.M., Peter Abramoff, Kumaran, A.K., and Millington, W.F. (1986). <i>Biology</i>. Prentice Hall: New Jersey</p> <p>D. Berridge, M.J., (1985). The Moleccular Basis of Communication Within The Cell. <i>Scientific Amer.</i> 253, 4: Hal 142-153.</p> <p>E. Ganong, W.F., (1989). <i>Review of Medical Physiology</i>, 10<sup>th</sup> ed. California: Lange Medical Publications.</p> <p>F. Guyton, A.C. (1986). <i>Text Book of Medical Physiology</i>, 7<sup>th</sup> ed. Hongkong: W.B. Saunders Company.</p> <p>G. Raven, P.H., &amp; Johnson, G.B. (1986). <i>Biology</i>. USA: Times Mirror/ Mosby College Publishing.</p> <p>H. Schmidt-Nielsen, K. (1983). <i>Animal Physiology</i>. 3<sup>rd</sup> ed. USA: Cambridge University Press.</p> <p>I. Van De Graaff, K.M. (1999). <i>Concepts of Human Anatomy and</i></p>															

