



THE MODULE HANDBOOK

Magister Biology Study Program FACULTY OF BIOLOGY

FORENSIC BIOLOGY

Course code	BIMB202109
Course level	Magister
Semester/term	Even
Course coordinator(s)	Dr. Niken Satuti Nur Handayani, M.Sc.
Lecture(s)	<ol style="list-style-type: none">1. Dr. Niken Satuti Nur Handayani, M.Sc.2. Drs. Hari Purwanto, M.P., Ph.D.3. Dr. Ratna Susandarini, M.Sc.4. Dr. Endah Retnaningrum, M.Eng.5. Zuliyati Rohmah, S.Si., M.Si., Ph.D.
Language	Indonesian
Classification within the Curriculum	Compulsory Interest Course
Teaching format/ class hours per week during the semester	This course is organised in single class and planned to have 14-16 teaching weeks and 2 weeks of examination.
Workload	Estimated working hour: 2 credits of theory.
Credits	2 credits
Requirements	-
Program Learning Outcome	<p>KN2: <i>The graduates are demonstrating excellent knowledge in appropriate biological research methods (knowledge)</i></p> <p>GS1: <i>The graduates are able to develop logical, critical, systematic, and creative thinking through scientific research; develop scientific concepts and present the results based on scientific rules, procedures, and ethics in the form of theses and scientific publications.</i></p> <p>GS2: <i>The graduates are able to make decisions in solving biological problems based on analytical or experimental studies and critical analysis of information and data;</i></p>
Course Learning Outcome	<ol style="list-style-type: none">1. Students are able to understand forensic biology as a sub-discipline of forensic science and its relationship with other disciplines.2. Students are able to understand and explain the application of animal, plant and microbial systematic studies, morphology, anatomy, palinology, odontology and entomotoxicology to identify evidence to make decisions in solving forensic problems based on analytical or experimental studies.



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	<p>3. Students will be able to conduct research in the field of forensic biology independently or in groups, be able to solve problems related to biology and apply / apply methods of molecular genetics, forensic botany, forensic anthropology and odontology, forensic entomology, and / or forensic microbiology.</p>																									
<p>Course Description</p>	<p><i>This course introduces a brief history of the development of forensic biology as a sub-discipline of forensic science, covering aspects of molecular genetics, forensic botany, forensic anthropology and odontology, forensic entomology, and forensic microbiology. Students will learn about sources of biological evidence (eg body fluids, tissues, bones, etc.) and individual biological evidence (eg blood group). In addition, it will study the importance of systematics, morphological and anatomical studies to identify biological evidence at the scene of a crime; pollen studies relating to findings about the location of death, decomposition and time of death; and methods required in forensic science, including examination methods for blood group and protein profiles, sex chromosome haplotyping and gender identification, the role of entomology in forensics, including the identification of insects and other arthropods to estimate the minimum elapsed time since death (post- death interval). minimum mortem / min PMI), insect fauna as an indication of the situation where the incident occurred, entomotoxicology, miasis as an indication of negligence, and the study of microorganisms in biocrime, bioterrorism and epidemiological investigations.</i></p>																									
<p>Assesments</p>	<table border="1"> <thead> <tr> <th>Assessment Component</th> <th>Percentage</th> <th>CPMK 1</th> <th>CPMK 2</th> <th>CPMK 3</th> </tr> </thead> <tbody> <tr> <td>Assignments</td> <td>15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Presentation</td> <td>15</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Mid Semester Exam</td> <td>35</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Final Exam</td> <td>35</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Assessment Component	Percentage	CPMK 1	CPMK 2	CPMK 3	Assignments	15				Presentation	15				Mid Semester Exam	35				Final Exam	35			
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<p>Study Media</p>	<p>PC, Laptop, Mobile phone, or tablets</p>																									
<p>Literature</p>	<ol style="list-style-type: none"> Houck, Max; Siegal, Jay (2006). <i>Fundamentals of Forensic Science</i>. China: Academic Press. Australia New Zealand Policing Advisory Agency (ANZPAA) (2017). <i>Forensic Science</i> https://www.anzpaa.org.au/ Coyle, HM. , Lee, CL., Lin, WY., Lee, HC. and Palmbach, TM. (2005). Forensic Botany: Using Plant Evidence to Aid in Forensic Death Investigation. <i>Croat. Med. J.</i> 46(4):606-612. Oliveira, M. & Amorim, A. Appl Microbiol Biotechnol (2018). https://doi.org/10.1007/s00253-018-9414-6 																									



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5. Harvey, ML., Gasz, NE., Voss, SC. 2016. Entomology-based methods for estimation of postmortem interval. DOI:10.2147/RRFMS.S68867
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6. Lu J, Breitwieser FP, Thielen P, Salzberg SL. 2017. Bracken: estimating species abundance in metagenomics data. *PeerJ Computer Science* 3:e104 <https://doi.org/10.7717/peerj-cs.104>
 7. Murphy, E. 2017. Forensic DNA Typing. *Annual Review of Criminology*. 1:497–515.
 8. David B. Rivers, Gregory A. Dahlem. The Science of Forensic Entomology. ISBN: 978-1-119-94037-1.
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