



THE MODULE HANDBOOK
DOCTOR BIOLOGICAL SCIENCES STUDY PROGRAM
FACULTY OF BIOLOGY

SELECTED TOPIC FOR DISSERTATIONS

Organogenesis and Teratology

Course code	BIDB243053
Course level	Doctoral Program
Semester/ term	Odd/even
Course coordinator	Prof. Dr. Bambang Retnoaji, S.Si., M.Sc
Lecture(s)	Prof. Dr. Bambang Retnoaji, S.Si., M.Sc Dr. med.vet. Hendry T.S.S.G. Saragih, M.P. Zuliyati Rohmah, S.Si., M.Si. Ph.D. Eng. Dr. Ardaning Nuriliani, S.Si., M.Kes.
Language	Indonesian/English
Classification within the Curriculum	Compulsory Specialization Courses
Teaching format/ class hours per week during the semester	This course is planned to have 14 teaching weeks and 2 weeks of examination.
Workload	1,125 hours/day 5 days/week 5,625 hours/week 16 Weeks/Semester total workload : 90 hours/3,6 ECTS
Credits	3.6 ECTS
Requirements	-
Program Learning Outcome	CPL 3.1. After completing this program, the graduates will be able to discover or develop new scientific theories/concepts/ideas in biology CPL 3.2. After completing this program, the graduates will be able to contribute to the development and practice of the field of biology through scientific research based on scientific principles and ethics through interdisciplinary, multidisciplinary, or transdisciplinary approaches in solving problems in the field of biology;
Course Learning Outcome	BIDB243053.1 By the end of this course, students will be able to understand the basic concepts, principles, and theories of functional organ formation, reproduction, and organogenesis in animals at the molecular level, and recognize the stages of embryonic development



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	<p>in relation to environmental factors influencing structural and cellular abnormalities.</p> <p>BIDB243053.2 By the end of this course, students will be able to understand gene regulation in gametogenesis and organogenesis, and recognize chemicals, infectious agents, and drugs with teratogenic potential along with their mechanisms of interaction.</p> <p>BIDB243053.3 By the end of this course, students will be able to demonstrate the ability to analyze developmental and structural abnormalities in animal organs caused by teratogens or other toxic factors</p> <p>BIDB243053.4.</p>
Course Description	<p>This course provides an understanding of the processes of organ formation during embryonic development in animals and humans, as well as structural and developmental abnormalities. Topics include reproduction and organogenesis from a molecular perspective, gene regulation in gametogenesis and organogenesis, and the mechanisms governing the formation of functional organs. The course also covers developmental abnormalities, focusing on substances with teratogenic potential, their mechanisms of action, drugs and chemicals that may cause developmental defects, and maternal conditions that contribute to embryonic abnormalities.</p>
Assessments	<p>The assessment for Selected Topic for Dissertations (Organogenesis and Teratology) is based on three main components, with the respective criteria and weights:</p> <ol style="list-style-type: none">1. Participatory Activity (20%)2. Project Results / Case Study Results / PBL Results (30%)3. Kognitif<ul style="list-style-type: none">- Assignment (5%)- Quizzes (5%)- Mid-Term Exam (20%)- Final-term Exam (20%)
Study Media and Literature	<p>Main:</p> <ol style="list-style-type: none">a. https://embryology.med.unsw.edu.au/embryology/index.php/Animal_Developmentb. https://embryo.asu.edu/pages/embryonic-differentiation-animalsc. http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/E/EmbryonicDevelopment.htmld. http://www.britannica.com/science/animal-developmente. http://www.britannica.com/science/animal-development/Organ-formationf. Lutz Slomianka, 2009, Blue Histology, University of Western Australia, http://www.lab.anhb.uwa.edu.au/mb140/g. http://www.embryology.ch/genericpages/moduleorganoen.html <p>Addition:</p> <ol style="list-style-type: none">1. https://www.cdc.gov/ncbddd/birthdefects/surveillancemanual/chapters/chapter-1/chapter1-4.html2. https://www.who.int/news-room/fact-sheets/detail/congenital-anomalies3. https://www.cdc.gov/ncbddd/fasd/index.html4. https://embryology.med.unsw.edu.au/embryology/index.php/Abnormal_Development_-_Thalidomide5. https://embryo.asu.edu/pages/retinoids-teratogens6. https://stemcells.nih.gov/7. https://www.diabetes.org/diabetes