

Module Handbook

Module designation	Plant Embryogenesis (course code MPB 2109)
Semester(s) in which the module is taught	3
Person responsible for the module	<i>Dr. Dwi Gusmalawati, Dr. Elvi Rusmiyanto P.W. Dr. Zulfa Zakiah, Mukarlina, M.Si</i>
Language	<i>Indonesia</i>
Relation to curriculum	Compulsory
Teaching methods	<i>Lecture</i>
Workload (incl. contact hours, self-study hours)	<p><i>(Estimated) Total workload: 170 minutes x 2 unit x 16 = 5,440 minutes (91 hours)</i></p> <p><i>Contact hours (please specify whether lecture, exercise session, etc.):</i></p> <p><i>Class A lecture: every Monday, 07:30 - 09:10</i></p> <p><i>Class B lecture: every Thursday, 09.30-11.10</i></p> <p><i>Private study including examination preparation, specified in hours¹: 120 minutes x 16 session =1,920 minutes (32 hours)</i></p>
Credit points	<i>2 unit</i>
Required and recommended prerequisites for joining the module	<i>Plant Morphology and Anatomy (course code MPB 1204)</i>
Module objectives/intended learning outcomes	<p>Knowledge: <i>Mastering and being able to apply biological science and other scientific fields that support the development of biological science</i></p> <p>First general skill: <i>Able to work in teams and communicate actively orally and in writing in the field of biological sciences</i></p>

¹ When calculating contact time, each contact hour is counted as a full hour because the organisation of the schedule, moving from room to room, and individual questions to lecturers after the class, all mean that about 60 minutes should be counted.

Content	<i>The subject exposes students to the basic knowledge required to understand plant embryogenesis principles. Students will get to know about Angiospermae reproduction, microsporangium, male gametophyte, megasporangium, female gametophyte, pollination, fertilisation, endosperm, embryo, polyembryony, apomixis, seeds, relationship between embryology and taxonomy, research and application of embryology.</i>
Examination forms	<i>Written test</i>
Study and examination requirements	<i>Re-registration and 75% attendance.</i>
Reading list	<ol style="list-style-type: none"> 1) <i>Bojwani, S. S & S. P. Bhatnagar. 1979. The Embryology of Angiosperms. 3rd Revised Edition. Jhilmil Tahirpur Industrial Area, Shahdara, Delhi.</i> 2) <i>Evert, R. F. 2006. Esau's Plant Anatomy Meristems, Cells, and Tissue of The Plant Body: Their structure, function, and development. Third Edition. A Jhon Wiley & Sons, Inc., Publication, New Jersey.</i> 3) <i>Fahn, A. 1990. Plant Anatomy. Fourth Edition. Pergamon Press. Oxford. New York.</i> 4) <i>Lersten, N. R. 2004. Flowering Plant Embryology whith Emphasis on Economic Species. Blackwell Publishing IOWA, USA.</i>