Doctor in Mathematics

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MODULE HANDBOOK

Module designation	Literature Review and Philosophy of Science
Code, if applicable	MMM-7001
Subtitle, if applicable	Literature Review and Philosophy of Science
Semester(s) in which the module is taught	1st semester in the first year of each student
Person responsible for the module	Head of the Study Programme
Language	Bahasa Indonesia
Relation to curriculum	Compulsory course in the 1st or 2nd semester of doctor's degree
Teaching methods	Lecture, classroom discussion, flipped classroom, project.
Workload (incl. contact hours, self-study hours)	Total workload is 309.33 hours per semester, which consists of 50 minutes lectures per week, 120 minutes structured activities per week, 120 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.
Credit points in Credit Units	4
Required and recommended prerequisites for joining the module	Students have strong knowledge on mathematics which is related to their research.

Module objectives/intended learning outcomes	After completing this course, the students should have the ability to: CO 1 *access, analyze, evaluate, and write literature review properly as well as interpret the role of the literature review in their dissertation.* CO 2 develop research questions and the suitable frameworks based on the researched literature. CO 3 perform good arguments for their own research based on the literatures. CO 4 master the scope, basic orientation, and main perspectives in the philosophy of science so as to be able to formulate, analyze, and propose solutions to existing scientific-philosophical problems in the mathematics doctoral study
Content	1. *Research Topic: preparation of research topics, development of research questions, and maps of literature and arguments.* 2. *Research Methodology: preparation of research flow.* 3. *Scope of Philosophy of Science: Limitation of understanding of Philosophy of science, framework for philosophical study of science, and linkages philosophy of science to other fields of study.* 4. *Science paradigmatic orientations: Scientific elements and processes, Axioms in science, methodological orientations of scientific research techniques, and science paradigmatic orientations.* 5. *Perspectives on the progress of science: Empirical logical conception.* 6. *Philosophy of mathematical or statistical research.*
Examination forms	*Essay / Oral presentation / project.*
Study and examination requirements	*The final mark will be weighted as follows:*

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No	Assessment methods (components, activites)	Weight (percentage)
1	Final Examination: final project/presentation/oral exam/essay	30-40%
2	Mid-Term Examination: presentation/oral exam/essay	30-40%
3	Class Activities: presentation, quiz, homework, etc.	20-30%

To pass the course, students are expected to get a minimum grade of B.

Media employed	*Board, LCD Projector, Laptop/Computer*

Reading list	1. Brown, J.R., 2008, Philosophy Of Mathematics: A Contemporary Introduction to the World of Proofs and Pictures, Second Edition, Routledge, New York.
	2. Bandyopadhyay, P.S., and Forster, M.R., 2011, Handbook of the Philosophy of Science 7, North Holland.
	3. Dilworth, C., 1981, Scientific Progress, A Study concerning the nature of relation between scientific theories, D. Reidel Publishing Company, Dordrecht.
	4. Haig, B.D., 2018, The Philosophy of Quantitative Methods: Understanding Statistics, Oxford University Press.
	5. Wasserman, L., 2004, All of statistics: a concise course in statistical inference. Springer.
	6. DeGroot, M.H., and Schervish, M.J., 2014, *Probability and Statistics*, Fourth Edition, Addison-Wesley.

CO-PLO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1	v	v	v	v		v
CO 2	v	v	v			v
CO 3	v	v	v			v
CO 4	v	v	v			v

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