Module Descriptions

A **module** is a self-contained **learning unit** within a higher education program that includes thematically related courses and is assigned a **fixed number of credits**. It follows specific **learning objectives**, includes an **assessment component**, and contributes to achieving the qualifications of a degree program. In some countries, “modules” are also named “courses”.

Please provide a module description for each module. In addition to the compulsory and elective modules, this also includes credited internships and the final thesis.

Please summarize all module descriptions in one document (Module Handbook) and create a table of contents so that the modules can be found easily.

Module designation	*Mathematical Statistics*
Semester(s) in which the module is taught	*2*
Person responsible for the module	*Prof. Dr. Dhoriva Urwatul Wustqa M.S.* *Dr. Retno Subekti S.Si., M.Sc.*
Language	*Indonesian.*
Relation to curriculum	*Elective.*
Teaching methods	*Lecture, discussion and project.*
Workload (incl. contact hours, self-study hours)	*Total workload is 90.67 hours per semester which consists of 100 minutes lectures, 120 minutes structured activities, and 120 minutes self-study per week for 16 weeks.*
Credit points	*2*
Required and recommended prerequisites for joining the module	-
Module objectives/intended learning outcomes	*After taking this course the students have ability to:* *CO1. Students understand the function of random variables.* *CO2. Students understand the concepts and theorems related to joint distributions.* *CO3. Students understand the concepts and theorems related to the properties of random variables.* *CO4. Students understand distributional convergence.* *CO5. Students understand point estimation and estimator evaluation.* *CO6. Students understand completeness and sufficiency.*
Content	*This course covers topics including joint and marginal distributions, conditional distributions, properties of random variables, cumulative distribution function techniques, transformations, sums of random variables, order statistics, limiting distributions, point estimation using the method of moments and maximum likelihood, estimator evaluation, completeness, and sufficiency.*

Examination forms	*Assignments and written examinations.*
Study and examination requirements	*The course assessment is divided into two main components:* 1. ***Cognitive Assessment (50%)*** *This includes the following elements:* ○ *Attendance: 0%* ○ *Quiz: 0%* ○ *Assignment:15%* ○ *Midterm Exam (UTS): 15%* ○ *Final Exam (UAS): 20%* 2. ***Participatory Assessment (50%)*** *This includes:* ○ *Case Study: 0%* ○ *Team-Based Project: 50%* ***Total: 100%***
Reading list	*1. Wackerly, Dennis D., William Mendenhall, and Richard L. Scheaffer. 2008. Mathematical statistics with applications. Belmont, CA: Thomson Brooks/Cole.* *2. Bain, Lee J., and Max Engelhardt. 1992. Introduction to probability and mathematical statistics. Pacific Grove, CA: Duxbury/Thomson Learning* *3. Casella, G., & Berger, R.L. 2002. Statistical inference second edition. Pacific Grove, CA.* *4. Ramachandran, K. M., & Tsokos, C. P. (2020). Mathematical statistics with applications in R. Academic Press.*