



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Department of Computer Science and Electronics

Sekip Utara Bulaksumur Yogyakarta 55281 Telp: +62 274 546194 Fax: +62 274 546194 Email: dep-ike.mipa@ugm.ac.id

Doctoral Programme of Computer Science

Telephone : (0274)546194

Email : s3ik.mipa@ugm.ac.id

Website : <http://dcse.fmipa.ugm.ac.id/site/id/s3-ilmu-komputer/>

Module name : **ADVANCE STATISTICS**

Module level, if applicable : **DOCTORAL**

Code, if applicable : MII7235

Semester(s) in which the module is taught : 1 (Odd)

Person responsible for the module : Dr. Suprpto, M.I.Komp. and Dr. Agus Sihabuddin, M.Kom.

Lecturer(s) : Dr. Suprpto, M.I.Komp.

Language : Indonesia

Relation to curriculum : Doctorate Degree program, elective, 1st and 2nd semester

Credit points : 3 credit points

Type of teaching, contact hours : Doctorate: lectures for < 5 students. Contact hours are lecture hours.

Workload : Lectures and discussion: 3 x 50 = 150 minutes (2.5 hours) per week.
Exercises and assignments: 3 x 60 = 180 minutes (3 hours) per week.
Independent study: 3 x 60 = 180 minutes (3 hours) per week.

Requirements according to the examination regulations : A student must have attended at least 75% of the lectures to sit in the exams.

Recommended prerequisite : -

Module objectives/ intended learning outcomes : After completing this module, a student is expected to
CO1: Have knowledge and ability to identify and test assumptions for statistical tests.
CO2: Have knowledge and ability to select, conduct and report appropriate statistics to test hypotheses with several types of independent and dependent variables and their combinations.
CO3: Have knowledge and ability to create tables to report findings.
CO4: Have knowledge and ability to compare the utility of multivariate statistical methods.
CO5: Have a comprehensive knowledge and ability to interpret reported statistical findings.

Content	: During the course, students will study multivariate techniques in several domains of research and apply aspects of complex research designs, including model testing, decision theory, and advanced statistical techniques.
Study and examination requirements and forms of examination	: Evaluation is done in 3 forms, namely: 1. Two examinations, mid-term and final, 2. Two case-based assignment, and 3. A short review paper on state-of-the-art methods in formal methods.
Media employed	: LCD, blackboard, and websites.
Reading List	1. Mertler, C. A. & Vanatta, R. A. (2005). Advanced and Multivariate Statistical Methods. (3rd ed.) Glendale, CA: Pyrczak Publishing. ISBN: 1884585590 2. Understanding Advanced Statistical Methods, Westfall, P.H., Henning, K.S.S., CRC Press, 20134. 3. Advanced Statistics Using R, Zhang, Z. and Wang, L. ISDSA Press Granger, IN www.isdsa.org , 2017. 4. Statistical Analysis Handbook - A Comprehensive Handbook of Statistical Concepts, Techniques and Software Tools, Smith, M.J., Copyright © 2015-2021 All Rights reserved. 2018-2021 Edition. Issue version: 2021-1.

The Mapping of COs to PLOs

COs	PLOs							
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
CO1								
CO2								
CO2								
CO4								
CO5								

The PLO of DP-CS

PLO	Knowledge Area	PLO Description
PLO1	[Values and principles]	A graduate should be devoted to God Almighty, uphold the humanity values, internalize academic values and ethics, responsible in working around expertise independently.
Managerial Capability		
PLO2	[Professional attitudes]	A graduate should have good interpersonal skills; able to work together within the organization, both as a leader and a

		member; able to be the initiator; able to manage and delegate tasks; and have a sense of responsibility for their own work as well as take responsibility for the achievement of the organization's work.
PLO3	[Communication skills]	A graduate should be able to communicate effectively and efficiently with stakeholders from various backgrounds; use English well; and able to write and present scientific papers correctly and well.
PLO4	[Life-long learning]	A graduate should be up to date with the state-of-the-art especially in computer science field, able to take parts in the development of computer science field that is engaged in and relate it to other fields throughout life.
Working Capability		
PLO5	[Problem-solving and Scientific skills]	A graduate should be able to analyse science and technology problems in the computer science field, develop alternative solutions through intra disciplinary, interdisciplinary, and trans disciplinary approaches to produce innovative, original, and tested works.
PLO6	[Ability to formulate and do research]	A graduate should be able to formulate research problems through critical, exploratory, and innovative studies both independently and in groups of computer science field that is engaged in and present research results in a scientific paper at regional or international level.
Mastering Knowledge		
PLO7	[Fundamental knowledge]	A graduate should be able to develop knowledge in the field of computer science that is engaged, which includes abstraction, complexity, evolution and philosophy of changes or developments in the field of science.
PLO8	[Applied knowledge]	A graduate should be able to develop theoretical, philosophical, and applied concepts in the field of computer science that is engaged in, and to represent them in a structured and systematic manner.