



UNIVERSITAS GADJAH MADA

Faculty of Mathematics and Natural Sciences

Mathematics Department

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Undergraduate Program in Statistics

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MODULE HANDBOOK

Module name	Geographically Weighed Regression (GWR)
Module level, if applicable	S3 (Doktoral)
Code, if applicable	MSM 843
Semester	II nd
Person responsible for the module	Prof. Dr. Sri Haryatmi Kartiko, M.Sc
Lecture(s)	Prof. Dr. Sri Haryatmi Kartiko, M.Sc
Language	Indonesian
Classification within the Curriculum	Elective Studies
Teaching Methods and Hours per week during the semester:	Teaching Methods used are lecture, presentation and discussion. Lecture is given at the beginning of the class opening with 30 minutes allocation time. The remaining 120 minutes is used for presentation and discussion. In one semester the number of meetings are 14 lectures, 1 middle exam in 8 th week and 1 final exam in 16 th week.
Workload	3 hours lectures, 6 hours individual study, 14 weeks per semester, and total 126 hours a semester
Credit points	3
Requirements	Regression, Model Linier
Module objectives/intended learning outcomes	CO1 : Understanding local model for Spatisal Data, Traditionally Demographic Method, and local method for Spatial Data. CO2 : Understanding The Basic of <i>Geographically Weighted Regression (GWR)</i> and Applying Estimation of <i>Geographically Weighted Regression (GWR)</i> methods CO3 : Testing for parameters of <i>Geographically Weighted Regression (GWR)</i> . CO4 : Interpreting Statistical Inference of <i>Geographically Weighted Regression (GWR)</i> .
Content	<ul style="list-style-type: none"> - Local Model for Spatisal Data - Traditionally Demographic Method. - Local Method for Spatial Data. - The basic of <i>Geographically Weighted Regression (GWR)</i>. - Estimation of <i>Geographically Weighted Regression (GWR)</i> methods - <i>Geographically Weighted Regression (GWR)</i> methods - Weighting of Geographically Weighted Regression (GWR). - Testing for Spatial Non Stationarity. - Statistical inference of <i>Geographically Weighted Regression (GWR)</i> - <i>Geographically Weighted Regression (GWR)</i> as a Statistical Model
Study and examination requirements, methods and forms of examination	Learning is carried out by the SCL (Student Center Learning) method that in most material, lecturer is only as director and mediator of students in comprehending material related to lectures. Students are required to be active in the presentation and discussion process with the lecturer. Open examinations are based on the results of presentations and student assignments reports. Assessments are carried out based on the following assessment categories: Grade scale: A: $80 \leq \text{score}$ A/B: $70 \leq \text{score} < 80$

	B: $60 \leq \text{score} < 70$ B/C: $50 \leq \text{score} < 60$ C: $40 \leq \text{score} < 50$ D: $20 \leq \text{score} < 40$ E: $\text{score} < 20$
Media employed	Books on reference lists, supporting scientific journals and articles, LCDs, laptops, and blackboards.
Reading List	Fotheringham, A.S, Brundson, C dan Charlton, M. (2002), <i>Geographically Weighted Regression : The Analysis of Spatially Varying Relationships</i> , John Wiley & Sons Ltd, England.

CO and PLO mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6
CO 1	x	x				
CO 2			x			
CO 3					x	
CO4					x	x

PLO-1 S3 Mat	Attitude: Be faithful to God Almighty, uphold human values, internalize values, norms and academic ethics, be responsible for work in the field of expertise independently.
PLO-2	Knowledge: Master of Philosophy (Philosophy of Science) of Mathematics and one of the fields of mathematical science (algebra, analysis, applied mathematics, statistics, mathematical computing, or statistical computing).
PLO-3	Knowledge: Able to think logically, analytically, inductive, deductive, and structured; has the ability to manage, lead and develop research programs independently; and able to communicate the thoughts and results of his work to the scientific community and the general public.
PLO-4	General Skills: Creating new concepts and/or methods (original) in the field of mathematics that are recognized nationally and internationally.
PLO-5	Unique Skills: Be able to apply mathematics according to their field of expertise to solve problems including those that require multidisciplinary, cross-disciplinary, or transdisciplinary approaches.
PLO-6	Life Long Learning: Have the ability to learn throughout life (life long learning) and be adaptive to the development of science and technology especially in fields related to Mathematics and its applications.