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MODULE HANDBOOK

Module name	Regresi Nonparametrik (Nonparametric Regression)
Module level, if applicable	S3 (Postgraduate)
Code, if applicable	MMM 7408
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	2nd Semester
Person responsible for the module	Prof. Dr. Sri Haryatmi Kartiko, M.Sc
Lecture(s)	Prof. Dr. Sri Haryatmi Kartiko, M.Sc
Language	Bahasa Indonesia
Classification within the Curriculum	~~Compulsory course~~/ Elective Studies
Teaching format /class hours per week during the semester:	The teaching methods used are lectures, presentations and discussions. The lecture is given at the beginning of the lecture opening with an allocation of 30 minutes, the remaining 120 minutes is used for presentations and discussions. During one semester the number of meetings: 14 times, 1 midterm and 1 final .
Workload	3 hours lectures, 6 hours individual study, 14 weeks per semester, and total 126 hours a semester
Credit points	3
Requirements	Linear model, specifically about linear regression Mathematical Statistics, specifically about estimation theory
Module objectives/intended learning outcomes	By the end of this course : **CO1: Students are able to understand the basic concepts of nonparametric regression and differences with parametric regression, including density estimation using the histogram and kernel estimators.** **CO2: Students are able to estimate nonparametric regression curves with the kernel, and spline estimators.** **CO3: Students are able to select an optimal bandwidth in nonparametric kernel regression and an optimal knot points in spline nonparametric regression.** **CO4: Students are able to estimate nonparametric regression with another estimator (Fourier Series) along with the selection of oscillation parameters as a representation of the bandwidth.**
Content	- Basic concepts of nonparametric regression and differences with parametric regression. - Density estimation with histogram and kernel estimators. - Estimation of nonparametric regression curves with the kernel, and spline estimators. - Bandwidth selection in kernel nonparametric regression. - Selection of knot points in spline nonparametric regression. - Nonparametric regression with another estimators (Fourier Series) along with the selection of oscillation parameter as a bandwidth representation. - Application of nonparametric regression to data.

Study and examination requirements and forms of examination	The weight of assignments will be as follows: i. Daily Activity in Class and Soft Skill: 10% ii. Quiz and Daily Assignment : 15% iii. Mid semester exam : 35% iv. Final exam / Final project assignment: 40% Grade scale: A $85 \leq$ score A/B $75 \leq$ score < 85 B $60 \leq$ score < 75 B/C $50 \leq$ score < 60 C $40 \leq$ score < 50 D $20 \leq$ score < 40 E score < 20
Media employed	Books in reference lists, supporting scientific journals and articles, LCD, laptop, and whiteboards
Reading List	1. Eubank, R.L. (1988). *Spline Smoothing and Nonparametric Regression*. Marcel Dekker Ins, New York. 2. Green, P.J. and Silverman, B.W. (1994). *Nonparametric Regression and Generalized Linear Models*. Chapman and Hall, London. 3. Hardle, W. (1990). *Applied Nonparametric Regression*. Cambridge University Press, New York. 4. Hardle, W. (1991). *Smoothing Techniques with Implementation in S*. Spinger Verlag, New York. 5. Takezawa, K. (2006). *Introduction to Nonparametric Regression*. John Wiley and Sons, Inc., New Jearsy. 6. Thompson, J.R. and Tapia, R.A. (1990). *Nonparametric Function Estimation, Modelling and Simulations*. SIAM, Philadelpia. 7. Wahba, G. (1990). *Spline Models for Observational Data*. SIAM, Pensylvania.

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