



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	Small Area Estimation
Module level, if applicable	S3(Doctoral)
Code, if applicable	MMS-843
Subtitle, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	2 rd 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:	3 hours lecture
Workload	3 hours lectures, 6 hours individual study, 14 weeks per semester, and total 126 hours a semester
Credit points	3
Requirements	MMS-2420 Introduction to Math Statistics
Module objectives/intended learning outcomes	By the end of this course : CO 1. Students are able to understand and explain mathematically several small area models CO 2. Students are able to explain and doing direct domain estimation CO 3. Students are able to looking for estimators using the Traditional Demographic Method and EBLUP Method CO 4. Students are able to looking for estimators using the Empirical Bayes Method and the Hierarchical Bayes Method
Content	Small Area Models; Direct Domain Estimation; Traditional Demographic Methods; EBLUP Method; The Empirical Bayes Method; Hierarchical Bayes Method
Study and xamination requirements and forms of examination	The weight of assignments will be as follows: i. Quiz, homework 10% ii. Group discussion 15% iii. Mid semester exam 35% iv. Final exam 40% Grade scale: A 85 ≤ score A/B 75 ≤ score < 85 B 60 ≤ score < 75 B/C 50 ≤ score < 60 C 40 ≤ score < 50 D 20 ≤ score < 40 E score < 20
Media employed	Slides and LCD projectors, whiteboards
Reading List	1. Mukhopadhyay, P. , 1998, <i>Small Area in Survey Sampling</i> , New Delhi : Narosa Publishing House.

	<ol style="list-style-type: none"> 2. Pfefferman, D., 2002, Small Area Estimation – New Developments and Directions, <i>Interntinal Statistical Review</i>, 70: 125-143. 3. Pfefferman, D. , 2013, New Important Developments in Small Area Estimation, <i>Statistical Science</i>, 28(1): 40-68. 4. Rao, J. N. K. , 2003, <i>Small Area Estimation</i>. New Jersey: Wiley. 5. Rao, J. N. K., 2014, Inferential Issues in Model Based Small Area Estimation: Some New Developments, <i>Statistical in Transition New Series and Survey Methodology. Joint SpecialIssues: Small Area Estimation</i>, 16(4):491-510.
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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