MODUL HANDBOOK
ENVIRONMENTAL STATISTICS

MASTER PROGRAM OF ENVIRONMENTAL SCIENCE
SCHOOL OF POSTGRADUATED STUDIES
DIPONEGORO UNIVERSITY

Modul Description:

Module designation	Environmental Statistics
Semester(s) in which the module is taught	1st semester
Person responsible for the module	Prof. Dr. Dra. Sunarsih, M. Si Dr. Budi Warsito, S.Si, M.Sc Ferry Hermawan, S.T., M.T., Ph.D.
Language	Indonesian and English
Relation to curriculum	Compulsory
Teaching methods	Mix Method or Blended Learning by incorporating Lecture based-learning, Individual learning and High Technological learning • Lecture based learning: teacher lead a lesson by using presenting on, showing visual • Student-Centred learning; teacher promote individual learning so that student can exploring individual idea • Teacher and student using current information technology by utilizing social media for discussion (Q and A), utilizing internet/searching engine to showing the example of problem solving for a certain topic related.
Workload (incl. contact hours, self-study hours)	• Lecture, 2 hours per week • Discussion and presentation (Q&A), 1 hours per week • Individual assignment, 3 hours per week • Total workload for semester = 100 hours
Credit points	2 credits / 4 ECTS
Required and recommended prerequisites for joining the module	No required prerequisite
Module objectives/intended learning outcomes	• Able to formulate and carry out scientific research to solve environmental problems, especially in performing statistical data. • Able to formulate methods of environmental management to improve the quality of life, by using statistical methods.
Content	Environment statistics course discusses the meaning of statistics, descriptive statistics, basic concepts of probability, probability distribution, theoretical distribution of random variables, theoretical distribution of continuous random variables, sampling distribution, estimation, single sample hypothesis testing, multiple sample hypothesis testing, some other inferential analysis, linear regression simple and correlation, and some non-parametric methods.

Examination forms	• Open book or clossed book • Assays, • Individual and group task
Study and examination requirements	Lecture attendance at least 75%.
Reading list	1. Darma Budi., Statistical Research Using SPSS, Guepedia Publisher, Jakarta, 2021. 2. Hek Kim Tan., Introduction to Statistics, Publisher of the Kita Write Foundation, Medan, 2021. 3. Ott, W. R. (2018). Environmental statistics and data analysis. Routledge. 4. Hadi, S., Statistics, Student Library, Yogyakarta, 2015. 5. Rohmad, and Supriyanto, Introduction to Statistics, Kalimedia, Yogyakarta, 2015. 6. Usman, H., and Akbar, PS, Introduction to Statistics, Earth Literacy, Jakarta, 2015 7. Millard, S. P. (2013). EnvStats: an R package for environmental statistics. Springer Science & Business Media. 8. Reimann, C., Filzmoser, P., Garrett, R., & Dutter, R. (2011). Statistical data analysis explained: applied environmental statistics with R. John Wiley & Sons. 9. Supranto J., Theory and Application of Statistics Volume 1, Erlangga, Jakarta, 2009. 10. Supranto J., Theory and Application of Statistics Volume 2, Erlangga, Jakarta, 2009. 11. Barnett, V. (2005). Environmental statistics: methods and applications. John Wiley & Sons.