Applied Biostatistics

Module designation	Provides an understanding of the presentation of statistical data in research in the field of biomedical engineering as well as an understanding of statistical analysis of research data in the field of biomedical engineering.
Module level, if applicable	Master
Code	SPSTB212206
Subtitles, if applicable	-
Courses, if applicable	-
Semester(s) in which the module is taught	Odd semester
Person responsible for the module	Dr. drg. Rosa Amalia, M.Kes.
Lecturers	Dr. drg. Rosa Amalia, M.Kes. drg. Aryan Morita, M.Sc., Ph.D. drg. Heribertus Dedy Kusuma Yulianto., M.Biotech., PhD. Dr. drg. Dibyo Pramono, S.U., MDSc
Language	Indonesian
Relation to curriculum	Compulsory course
Type of teaching, contact hours	This course is planned to have 14 teaching weeks and 2 weeks of examination. several types of teaching conducted: - Classic tutorial, - Case-study learning, - Discussion - Practical activities → SPSS software

Workload	This course is planned to have 13 teaching weeks, 1 week lab visit, and 2 weeks of examination. Lectures = 3 SKS x 50 minutes x 15 meetings = 2250 minutes = 37.5 hours = 37.5 hours/25 hours =1.5 ECTS Experiment/practical activity = 3 SKS x 60 minutes x 1 meeting = 180 minutes = 3 hours = 3/25 hours = 0.12 ECTS Assigment = 3 SKS x 60 minutes x 16 meetings = 2880 minutes = 48 hours = 48 hours/ 25 hours =1.92 ECTS Self Study = 3 SKS x 60 minutes x 16 meetings = 2880 minutes = 48 hours = 48 hours/ 25 hours =1.92 ECTS Total workload = 5.46 ECTS
Credit points	3 SKS (5.46 ECTS)
Requirements according to the examination regulations	-
Recommended prerequisites	-
Module objectives/intended learning outcomes	PLO 1: Able to use knowledge in the fields of engineering, health, and biology to analyze problems in the field of biomedical engineering globally that are relevant to public needs. PLO 3: Able to test and analyze relevant design results in biomedical engineering field. PLO 4: Able to communicate and work effectively in a multi-disciplinary team.

Content	1. Summarizing and presenting data 2. Hypothesis Testing for Continous Data 3. Hypothesis testing for Categorical data 4. Descriptive statistics 5. Non-Parametric Statistics 6. Sample Size Estimation 7. Correlation & Sample Linear regression 8. Multiple Regression 9. Logistic Regression 10. Diagnostic Test 11. Multivariations Analysis 12. Relation of Odds Ratio (OR) and Relative Risk (RR) 13. Practical Activities → SPSS software to analyse data
Study and examination requirements and forms of examination	Classes are conducted with 80% classic tutorial and 20% case study/project based presentation per meeting. Exams are done by task-based exam.
Media employed	PowerPoint, LMS (eLok, Google Classroom, etc.), and online meeting platform (Zoom, Gmeet, etc.)
Reading list	1. Bland, M. 2000. An Introduction to Medical Statistics. Oxford University Press, Oxford. 2. Hosmer, D.W. & Lemeshow, S. 1989. Applied Logistic Regression. John Wiley & Sons, New York. 3. Lemeshow, S., Hosmer, D.W., Klar, J. and Lwanga, S.K. 1990. Adequacy of Sample Size in Health Studies. John Wiley & Sons, New York. 4. Rosner, B. 2006. Fundamentals of Biostatistics. Thomson Brooks/Cole, Singapore. 5. Sorlie, D.E. 1995. Medical Biostatistics and Epidemiology. Appleton & Lange. Norwalk, Connecticut
Last modified	November 2025.