

MASTER PROGAM IN APPLIED STATISTICS



PADJADJARAN UNIVERSITY

2023

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INTRODUCTION

Alhamdulillah, with the blessings and guidance of Allah SWT, we are pleased to present the profile book of the Master of Applied Statistics Study Program at the Faculty of Mathematics and Natural Sciences, University of Padjadjaran (UNPAD) for the 2022/2023 Academic Year. This book serves as initial information for the public who are interested in the Master of Applied Statistics Study Program at FMIPA UNPAD. Its preparation is a testament to the Applied Statistics Masters Study Program's commitment to delivering a comprehensive educational experience.



The profile book includes a description of the study program, the scientific vision of the program, available resources, achievements, and the activities of our lecturers in conducting research and collaborations abroad. We take pride in the efforts made by the drafting team who have worked hard to compile this profile book. At the Applied Statistics Masters Study Program, we are constantly striving to improve the quality of education for our students, in terms of both infrastructure and learning systems/methods. Our aim is to produce graduates with the skills and knowledge necessary to succeed in the field of data science.

We hope that this profile book will serve as a valuable resource for all those interested in the Master of Applied Statistics Study Program at FMIPA UNPAD. Once again, we extend our heartfelt appreciation to the drafting team for their hard work and dedication.

Bandung, 2023
Head of Study Program
Dr. I Gede Nyoman Mindra Jaya, M.SI

IDENTITY AND DESCRIPTION OF STUDY PROGRAM

FMIPA Padjadjaran University's Master of Applied Statistics program was established by the Directorate General of Higher Education's Decree No. 117/D/T/2007, dated January 18, 2007, and extended by the Chancellor's Decree No. 6626/D/T/K-N/2011. The Statistics Department in the Faculty of Mathematics and Natural Sciences manages the program, which trains students to solve statistical problems using non-standard data processing and analysis methods. Globalization and the strategic value of data and information necessitate this.

The program emphasizes theoretical and practical concepts and problem-solving in social, business, industrial, actuarial, and biomedical statistics. The Master of Applied Statistics program's activities also follow the faculty's vision, mission, goals, and objectives, which are based on the University of Padjadjaran's.

In summary, FMIPA Padjadjaran University's Master of Applied Statistics program trains students to solve a wide range of statistical problems using non-standard methods to meet global science and technology development challenges where data and information are strategic resources. The program emphasizes theoretical and practical concepts in social, business, industrial, actuarial, and biomedical statistics. The program's goals and objectives match the faculty's and the University of Padjadjaran's.



VISION AND MISSION

VISION

Becoming a center for the development of statistical disciplines that is able to integrate theory and its applications in supporting the development of Padjadjaran University to become a research university, so that in particular it is able to become the best center for advanced statistics education that will receive international recognition in 2024,

MISSION

- Carry out education (teaching, research, and development of science and community service) that is able to meet the demands of the user community.
- organizing higher education that is nationally competitive and relevant to the demands of the user community in advancing intellectual development.
- Develop research themes in the field of statistics that are able to contribute to solving real problems.
- Publish the results of research and thoughts developed by the academic community in the form of scientific publications.



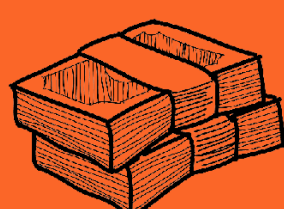
OUR ADVANTAGES



Graduated in 18 months for (36 - 41 Credits)



Bachelor of Statistics (Unpad) fast track program



Article processing charge for selected journals



Achieved superior accreditation 2022-2027

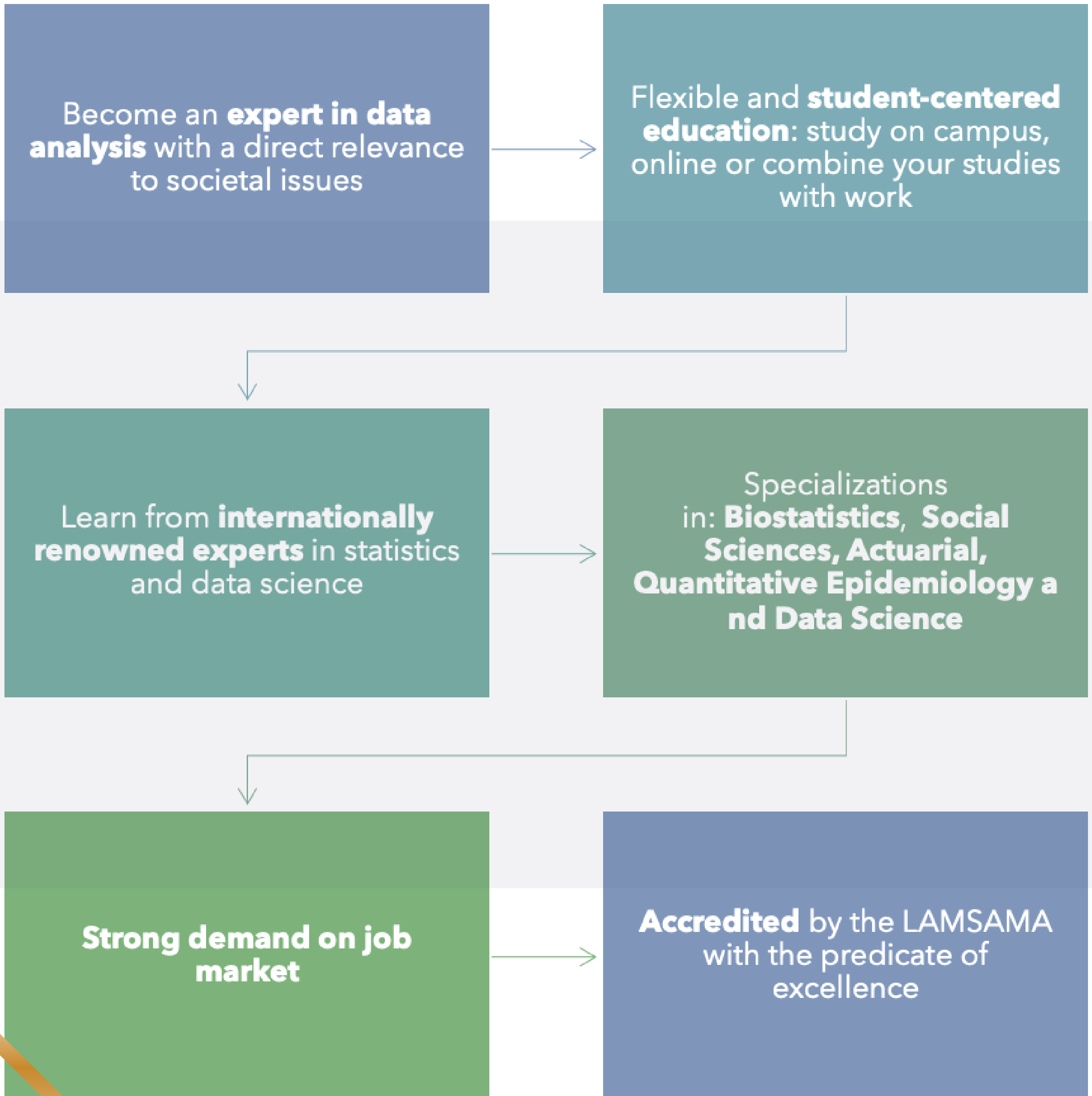


We have extensive international collaborations (UHasselt and Groningen Univ.)



Inbound and outbound student program (UHasselt)

WHAT U GET



DURATION OF STUDY

18 MONTHS

1.5 SEMESTERS

**MAXIMUM
SIX SEMESTERS**

CAMPUS



TUITION FEE

13.500.00/SEMESTER



SCHOLARSHIP



lembaga pengelola dana pendidikan



**PERGURUAN TINGGI
AKADEMIK (PTA)**



**BEASISWA INDONESIA
MAJU (BIM)**



**PROJECT LECTURER
PROGRAMS**



CURRICULUM



TOTAL 36-41 CREDITS



**27 CREDITS FOR
COMPULSORY COURSES
(SEMESTER 1 & 2)**



**3-6 CREDITS FOR
ELECTIVES COURSES
(SEMESTER 2)**



**8 CREDITS FOR THESIS
(SEMESTER 3)**



CURRICULUM

FIVE CONCENTRATIONS

- **SOCIAL STATISTICS**
- **BUSINESS AND INDUSTRIAL STATISTICS**
- **ACTUARIAL STATISTICS**
- **BIOMEDICAL STATISTICS**
- **DATA SCIENCE**

COMPULSORY COURSES

SEMESTER 1

Statistical Theory (3-0)

Statistical theory is the study of the principles and methods underlying statistical inference, which involves drawing conclusions from data. It covers topics such as probability theory, hypothesis testing, estimation, and Bayesian statistics. Statistical theory provides the foundation for statistical modeling and analysis and is essential for anyone working with data.

Multivariate Data Analysis (2-1)

Multivariate data analysis is the study of statistical methods for analyzing data that involves more than one variable. It covers techniques such as principal component analysis, factor analysis, and cluster analysis. Multivariate data analysis is commonly used in fields such as marketing, finance, and psychology to understand relationships between multiple variables.

Advance Regression Analysis (2-1)

Regression analysis is a statistical method used to model the relationship between a dependent variable and one or more independent variables. It involves estimating the coefficients of a regression equation that predicts the dependent variable based on the independent variables. Regression analysis is commonly used in fields such as economics, social sciences, and engineering to make predictions and understand the relationships between variables.

Stochastic Process (3-0)

Stochastic processes are mathematical models used to describe systems that evolve over time in a probabilistic manner. They are used in fields such as finance, physics, and engineering to model random fluctuations and uncertainties. Stochastic processes cover topics such as random walks, Markov chains, and Brownian motion.

Statistical Computing (0-3)

Statistical computing is the use of computational methods to perform statistical analysis. It covers topics such as data cleaning, data visualization, and statistical programming languages such as R and Python. Statistical computing is essential for anyone working with large datasets and complex statistical models, and is used in fields such as data science, biostatistics, and econometrics.

COMPULSORY COURSES

SEMESTER 2

Spatial Data Analysis (2-1)

Spatial data analysis is the study of analyzing and modeling spatial data, which is data that is associated with a specific location or geographic area. It involves using statistical and computational methods to analyze patterns, relationships, and trends in spatial data. Spatial data analysis is commonly used in fields such as geography, environmental science, and urban planning.

Nonparametric Statistics (2-1)

Nonparametric statistics is a branch of statistics that does not assume a specific probability distribution for the data being analyzed. It involves using statistical methods that are based on ranking or ordering the data rather than assuming a particular distribution. Nonparametric statistics is commonly used when the assumptions of parametric statistics are not met or when the sample size is small.

Time Series Data Analysis (2-1)

Time series data analysis is the study of analyzing and modeling data that varies over time. It involves using statistical and computational methods to analyze patterns, trends, and seasonal effects in time series data. Time series data analysis is commonly used in fields such as finance, economics, and engineering to forecast future trends and make informed decisions based on past trends.

Data Mining and Competitive Intelligence (2-1)

Data mining is the process of analyzing large datasets to extract patterns and insights. It involves using machine learning algorithms and statistical methods to identify relationships and trends in data. Competitive intelligence is the process of gathering and analyzing information about competitors and the market in order to make informed business decisions. Data mining and competitive intelligence are often used together to gain a competitive advantage in industries such as marketing, finance, and healthcare.

CONCENTRATIONS (SEMESTER 2)

Social statistics

Focuses on analyzing and interpreting data related to social phenomena, such as population trends, social inequality, crime rates, education, and health outcomes.

Business and industrial statistics

Business and industrial statistics is a concentration that involves the application of statistical techniques to analyze and improve business processes, optimize production, manage inventory, and forecast demand.

Actuarial statistics

Actuarial statistics is the study of statistical methods and techniques used in the insurance and financial industries to evaluate and manage risk. Actuaries use statistical models to assess the probability of future events and their financial impact.

Biomedical statistics

Biomedical statistics is a concentration that focuses on the use of statistical methods to design and analyze studies in the biomedical sciences, such as clinical trials, epidemiological studies, and genetics research. Biostatisticians work closely with researchers to ensure that studies are properly designed and that data is accurately analyzed and interpreted.

Data scientist

Data science is a field that combines statistical analysis, machine learning, and computer science to extract insights and knowledge from data. Data scientists use statistical methods and programming languages to analyze and interpret complex data sets, build predictive models, and develop data-driven solutions to real-world problems.

SOCIAL STATISTICS

Concentration subjects

Sampling Surveys (2-1)

Sampling surveys is a field of study concerned with the selection and analysis of samples from populations. It involves designing and conducting surveys to collect data from a representative sample of a population, and then using statistical methods to make inferences about the population as a whole. Sampling surveys are commonly used in fields such as social sciences, marketing, and public health.

Structural Equation Modelling (2-1)

Structural equation modelling (SEM) is a statistical method used to test and confirm theoretical models or relationships between variables. It involves constructing a model with latent variables and observed variables and then analyzing the relationships between them. SEM is commonly used in social sciences, psychology, and business to test hypotheses about complex systems.

Categorical Data Analysis (2-1)

Categorical data analysis is a statistical method used to analyze categorical data, which consists of variables that can be placed into one of several categories. This includes data such as yes/no responses, demographic information, and survey responses. Categorical data analysis involves techniques such as chi-square tests, logistic regression, and contingency tables.

BUSINESS AND INDUSTRIAL STATISTICS

Concentration subjects

Structural Equation Modelling (2-1)

Structural equation modelling (SEM) is a statistical method used to test and confirm theoretical models or relationships between variables. It involves constructing a model with latent variables and observed variables and then analyzing the relationships between them. SEM is commonly used in social sciences, psychology, and business to test hypotheses about complex systems.

Financial Mathematics (2-1)

Financial mathematics is the study of applying mathematical and statistical methods to financial markets, investments, and risk management. It involves using mathematical models to analyze financial data, make predictions, and manage risk. Financial mathematics covers topics such as option pricing, portfolio optimization, and risk management.

Experiment Design (2-1)

Experiment design involves planning and conducting experiments to test hypotheses and make conclusions about cause-and-effect relationships. It involves selecting the appropriate sample size, determining the experimental design, selecting the control group, and minimizing sources of bias.

ACTUARIAL STATISTICS

Concentration subjects

Actuarial Mathematics (2-1)

Actuarial mathematics is the study of applying mathematical and statistical methods to assess and manage risks in insurance, finance, and other industries. It involves calculating premiums, reserves, and other financial obligations to ensure that an organization has enough assets to pay out claims.

Financial Mathematics (2-1)

Financial mathematics is the study of applying mathematical and statistical methods to financial markets, investments, and risk management. It involves using mathematical models to analyze financial data, make predictions, and manage risk. Financial mathematics covers topics such as option pricing, portfolio optimization, and risk management.

Survival Analysis (2-1)

Survival analysis is a statistical method used to analyze time-to-event data, such as the time until a patient dies or the time until a machine fails. It is commonly used in medical research, engineering, and social sciences. Survival analysis takes into account censoring, which occurs when the event of interest has not occurred for all subjects by the end of the study period.

BIOMEDICAL STATISTICS

Concentration subjects

Epidemiology (2-1)

Epidemiology is the study of the distribution and determinants of health and disease in populations. It involves the collection, analysis, and interpretation of data to understand the patterns and causes of health and disease. Epidemiologists use various methods to study disease outbreaks, identify risk factors, and evaluate the effectiveness of interventions.

Survival Analysis (2-1)

Survival analysis is a statistical method used to analyze time-to-event data, such as the time until a patient dies or the time until a machine fails. It is commonly used in medical research, engineering, and social sciences. Survival analysis takes into account censoring, which occurs when the event of interest has not occurred for all subjects by the end of the study period.

Categorical Data Analysis (2-1)

Categorical data analysis is a statistical method used to analyze categorical data, which consists of variables that can be placed into one of several categories. This includes data such as yes/no responses, demographic information, and survey responses. Categorical data analysis involves techniques such as chi-square tests, logistic regression, and contingency tables.

DATA SCIENTIST

Concentration subjects

Machine Learning (2-1)

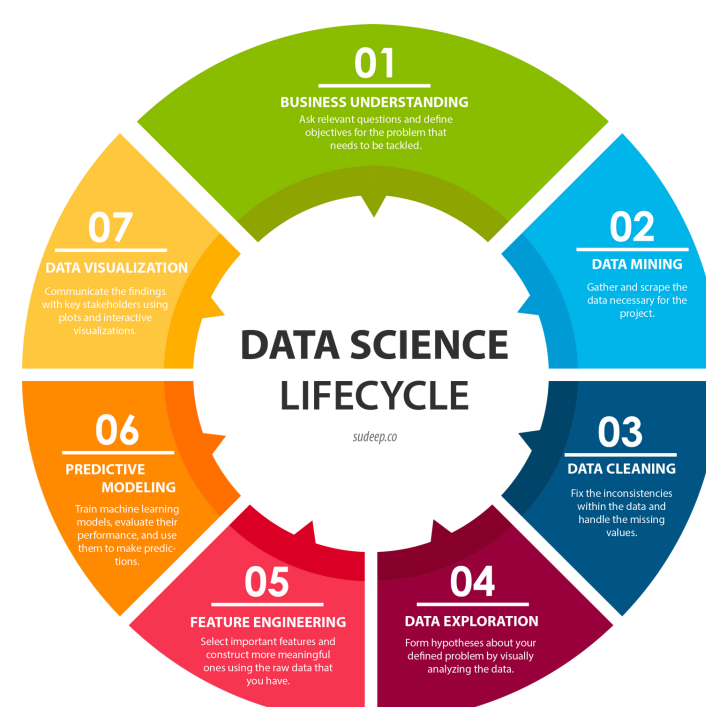
Machine learning is a subset of artificial intelligence that focuses on developing algorithms and statistical models that enable computers to learn from data and make predictions or decisions without being explicitly programmed. It is based on the idea that systems can automatically learn and improve from experience.

Image Processing (2-1)


Image processing is a field of study that focuses on the analysis, manipulation, and enhancement of digital images using various techniques and algorithms. This course covers topics such as image acquisition, image enhancement, image restoration, image segmentation, and object recognition. It is commonly used in various fields such as medicine, engineering, and entertainment to improve image quality, extract useful information, and detect patterns.

Text Analytics (2-1)

Text Analytics is the process of analyzing unstructured text data and extracting useful information from it. This course covers techniques such as text classification, sentiment analysis, topic modeling, and natural language processing (NLP). It is commonly used in various fields such as marketing, customer service, and finance to gain insights from customer feedback, social media posts, and other forms of unstructured data. Text analytics is a growing field, with many applications in the age of big data.



FACILITIES

- 24 Computers Lab + 1 Super computer
- Pojok statistik
- Article processing charge for selected journals 
- International journal subscription
- Proofreading service
- Student discussion room

REQUIREMENT

Academic Ability Test (TKA) 450

English Language Test (ELT) 450

IMPORTANT DATES

February - June

Check this website for details

<https://smup.unpad.ac.id/magister/>



COLLABORATION



BRIN
BADAN RISET
DAN INOVASI NASIONAL



**university of
 groningen**



KOMINFO



**The
University
Of
Sheffield.**

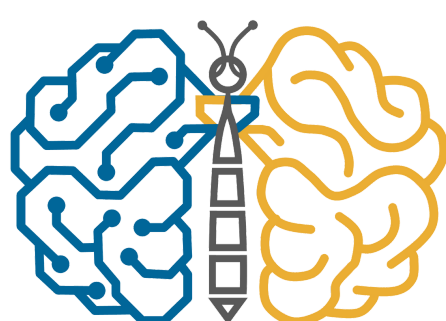


UNIST

**ULSAN NATIONAL INSTITUTE OF
SCIENCE AND TECHNOLOGY**



**UMEÅ
UNIVERSITY**



AIDA

**RESEARCH CENTER FOR ARTIFICIAL
INTELLIGENCE AND BIG DATA UNPAD**

ACADEMIC

ACTIVITIES



**Magister Statistika Terapan
FMIPA UNPAD**

Seminar Series Alumni
**Model Simultan Spasial dan
Aplikasinya**



Pembicara

DR. AGUS MUSLIM, M.STAT

Statistisi BPS Provinsi Kepri

Terbuka Untuk Umum -- **Hybrid** --



24 Februari, 2023

09:00-10:00 WIB



<https://bit.ly/SeminarSeriesS2Stat>

DAFTAR SEKARANG

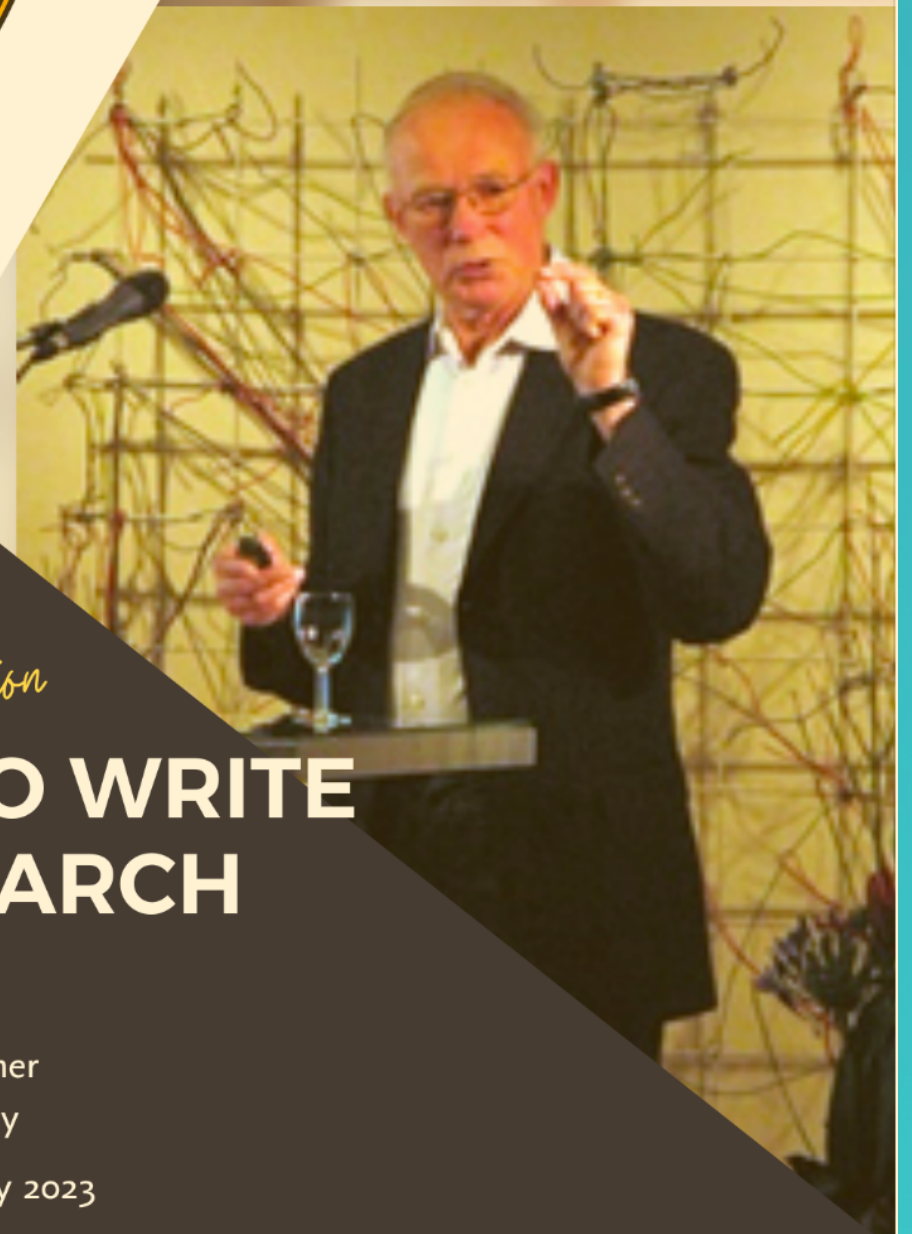
<https://bit.ly/daftarSeminarSeriesS2>



Laboratorium Komputer S2
Statistika Gedung D6 Lt. 3



Dalam rangka kujungan
Adjunct Professor



Sharing Session

**HOW TO WRITE
A RESEARCH
PAPER**

Professor Henk Folmer
Groningen University

Thursday, 26 January 2023

14:00 - 16:00 WIB

Gedung Fakultas Mipa

Pusat Studi Pemodelan dan Komputasi



Dr. IGN Mindra Jaya
Head of Applied Statistics Master's Program
FMIPA UNPAD

h-index

Scopus: 6 (44 Documents)

WOS : 5

Google scholar: 11 (i10-index = 12)

**WORKSHOPS IN
SCIENTIFIC WRITING AND PUBLISHING**



Friday, 26 August 2022
(08:30 -11:30 WIB)

FREE!

HYBRID



**APPLIED STATISTICS MASTER'S PROGRAM
FMIPA UNPAD**

NON-ACADEMIC ACTIVITIES





PROF. YUYUN HIDAYAT, PHD

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Education

University Malaysia Terengganu – Malaysia (Sains Matematika)

Research Interest

Quality Control, Time Series

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PROF. DR. TONI TOHARUDIN, M.SC

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Education

Groningen University - The Netherlands (Spatial Sciences)

Research Interest

Time Series, Deep Learning, Machine Learning

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PROF. DR. BUDI NURANI R, M.S

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Education

Institut Teknologi Bandung – Indonesia
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Research Interest

Spatial Statistics, Time Series

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PROF. DR. ATJE SETIAWAN ABDULLAH, M.S

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Education

Gajah Mada University - Indonesia (Computer Sciences)

Research Interest

Big Data, Etno Mathematics

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PROF. DR. YUDI ROSANDI, M.S

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Education

Technische Universitat Kaiserslautern – Germany

Research Interest

High Performance Computing, Environmental modeling, Computational material and mineral science

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DR. LIENDA NOVIYANTI, MS

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Education

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Research Interest

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YUDHIE ANDRIYANA, PHD

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Education

Leuven University – Belgium (Statistics)

Research Interest

Nonparametric regression, flexible modeling

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Education

Groningen University - The Netherlands (Spatial Sciences)

Research Interest

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DR. IRLANDIA GINANJAR, MSI

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Education

Institut Teknologi Bandung – Indonesia
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Research Interest

Multivariate, Big Data Analysis

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DR. IGDN MINDRA JAYA, M.SI

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Education

Groningen University - The Netherlands (Spatial Sciences)

Research Interest

Bayesian, Spatial, Spatiotemporal, Epidemiology

SCOPUS author ID : 57218102814

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DR. A APRILYANTI PRAVITASARI, M.SI

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Education

Institut Teknologi Sepuluh Nopember – Indonesia
(Statistics)

Research Interest

Bayesian, Image Analysis

SCOPUS author ID : 57204105479

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BUDHI HANDOKO, PHD

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Education

University of Sheffield - United Kingdom (Statistics)

Research Interest

Bayesian, Experimental Design

SCOPUS author ID : 57193951574

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DR. GUMGUM DARMAWAN, MSI

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Education

Gajah Mada University-Indonesia (Statistics)

Research Interest

Time Series

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Education

Institut Pertanian Bogor – Indonesia (Statistics & Data Science)

Research Interest

Spatial Statistics, Generalized Linear Model

SCOPUS author ID : 57194095673

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Education

Institut Pertanian Bogor – Indonesia (Statistics & Data Science)

Research Interest

Spatial Statistics, Generalized Linear Model

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REZZY EKO CARAKA, PHD

Email: carakarezzy@gmail.com

Education

Doctor of Philosophy, Department of Information Management, College of Informatics, Chaoyang University of Technology

Research Interest

Text Analytic, Deep Learning

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SINTA ID : 5978882



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