POLITEKNIK STATISTIKA STIS

For Better Official Statistics

Providing Statisticians and Data Scientist for Government Agencies in Indonesia

Erni Tri Astuti



Stats Café @UN ESCAP, 31 May 2021

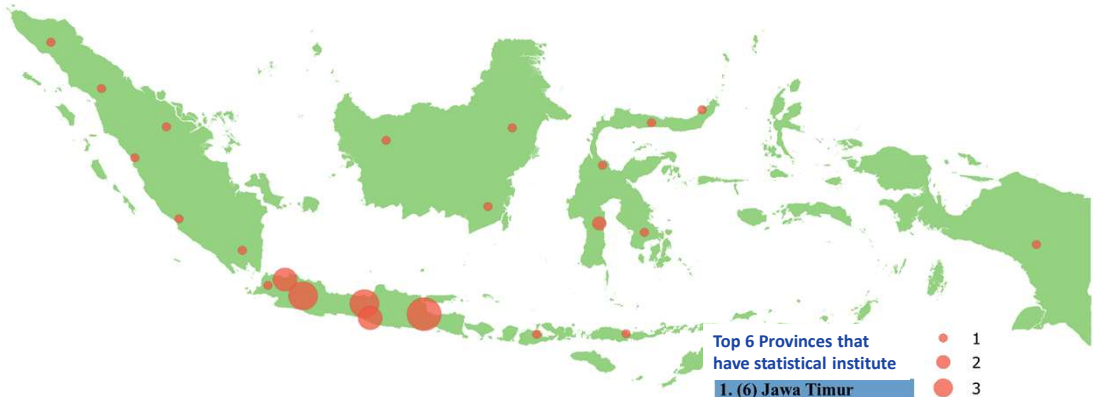
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FORSTAT Forum Pendidikan Tinggi Statistika

Indonesian Statistical Institutes Forum

www.forstat.org

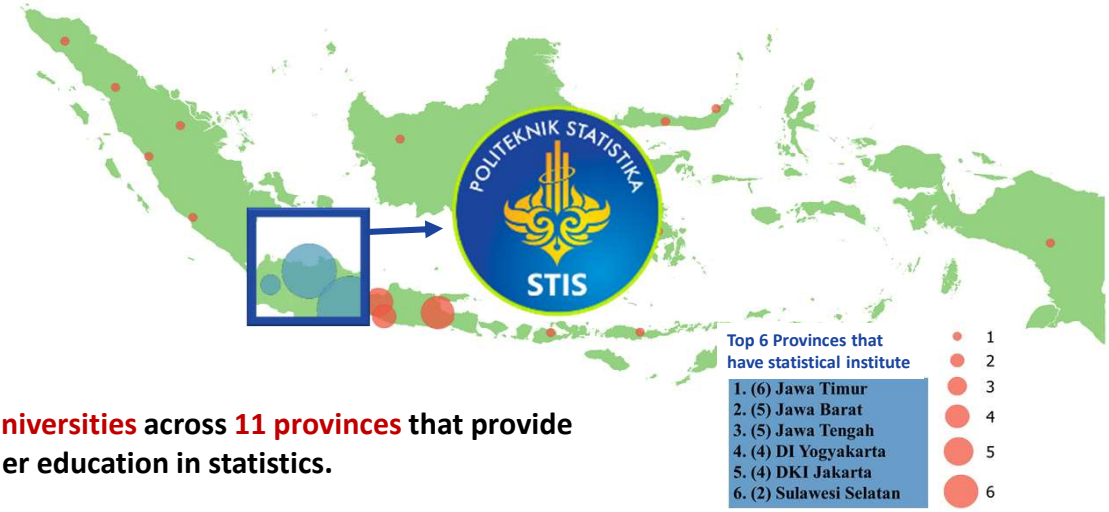


43 universities across **11 provinces** that provide higher education in statistics.

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Indonesian Statistical Institutes Forum

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POLITEKNIK STATISTIKA STIS



- Established in 1958 (**oldest** statistical institute in Indonesia)
- Managed by **BPS Statistics Indonesia**
- Offering **Undergraduate Programme in Statistical Science** (majoring in applied statistics and statistical computing)
- **Providing Human Resources** (Statisticians and Data Scientist) for BPS Statistics Indonesia and other Government Agencies in Indonesia

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THE POSITION OF *POLITEKNIK STATISTIKA STIS* IN INDONESIA'S HIGHER EDUCATION SYSTEM

Ministry of Education and Culture, Republic of Indonesia

BPS STATISTICS INDONESIA

Academic Matters:
- Guidelines of Curriculum
- Requirement of Lectures
- Credits , Diploma etc

Non Academic Matters:
- Budget & Funding
- Lectures and staff
- Main Stake Holder

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PROGRAMME

Diploma (3 years/ 110 credits)



Applied Statistics

Diploma (4 years/ 145 credits)



Applied Statistics

Minor:
- Economics Statistics
- Socio Demographic Statistics



Statistical Computing

Minor:
- Statistical Information System
- Data Science

Image Source: *https://www.freepik.com/vectors/business'>Business vector created by macrovector_official - www.freepik.com*

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GRADUATES PROFILES (2020)

Diploma (D-3) Applied Statistics

- Field Manager for Statistical Activities
- Quality Control of Statistical Activities
- Data Analyst
- Survey Instructor

Diploma (D-4) Applied Statistics

- Survey Designer
- Data Analyst
- Survey Supervisor
- Data Scientist

Diploma (D-4) Statistical Computing

- Survey Designer
- Statistical Analyst
- System Designer
- Data Scientist
- Data Engineer

NEW ENTRY STUDENTS

REQUIREMENT

- High School graduates with minimum **80** score of Math and English (Scale 1-100)

STAGES OF SELECTION

- Competency-based test for Government Officer, Mathemat Psychological Test, and Health Check

TUITON FEE

- 100% Free (Tuition fee and other costs)
- Scholarship from BPS Statistics Indonesia



± 25.000 Applicants/year



± 600 accepted

Facts: 3:1 applicants sex ratio

40 : 1

NUMBER OF STUDENTS BY GRADE AND PROGRAM (2020-2021 ACADEMIC YEAR)

Grade	D3 Stat	D4 Stat	D4 SC	Total
I	66	344	173	**583**
II	145	287	142	**574**
III	73	374	142	**589**
IV	-	427	107	**534**
Total	284	1432	564	**2280**

Facts: 60% from Java Island, 55-60% are women



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CURRICULUM STRUCTURE (2020)

Types	Courses	Credits	%	References
Compulsary	*Common Courses*	9	6	MoEC
	Core Courses (Statistics & Computer Science)	56	39	Forstat
	Capstone Project (Field Project Work & Internship)	16	11	Statistics Practices
	Institutional Core Courses	30	21	BPS Needs
Elective (Minor)	*In Depth & Enrichment Course*	33	23	BPS Needs
	Total Credits:	144	100	

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COURSES (D-4 APPLIED STATISTICS)

CORE COURSES

- **Fundamental Mathematics & Statistics** (Linear Algebra, Calculus, Probability Theory, Theory of Statistics)
- **Data Collection** (Sampling Technique, Experimental Design)
- **Data Processing** (Data base System, Data Mining, Computational Statistics, Basic Programming)
- **Data Analysis** (Statistical Methods, Regression Analysis, Time Series Analysis, Categorical Data Analysis)
- **Dissemination Statistics** (Data exploration and visualization, Seminar, Final Year Project)

INSTITUTIONAL COURSES

- Introduction to Economic
- Introduction of Computer Science
- Introduction to Demographic
- Introduction to Official Statistics
- Official Statistics
- Advanced Official Statistics
- National Account
- Survey Method
- Human Resources and Office management
- Communication Technique

COURSES (D-4 APPLIED STATISTICS)

IN DEPTH & ENRICHMENT COURSE

MINOR IN ECONOMIC STATISTICS

- Dana Mining & Big Data
- Spatial Data Analysis
- Introduction to Geographical Information System
- Introduction to Small Area Estimation
- Communication Technique
- Microeconomics
- Macroeconomics
- Applied Econometrics
- Advanced National Account
- Selected Topics in Economic Statistics

MINOR IN SOCIO DEMOGRAPHIC STATISTICS

- Dana Mining & Big Data
- Spatial Data Analysis
- Introduction to Geographical Information System
- Introduction to Small Area Estimation
- Demographic Technique
- Communication Technique
- Introduction to Structural Equation Modelling
- Survival Analysis
- Population Data Analysis
- Selected Topics in Socio Demographic Statistics

COURSES (D-4 STATISTICAL COMPUTING)

CORE COURSES

- **Fundamental Mathematics & Statistics** (Linear Algebra, Calculus, Dicrete Mathematics,Probability Theory, Theory of Statistics)
- **Data Collection** (Sampling Technique)
- **Data Processing** (Database System, Basic Programming, Data Structure, Object Oriented Programming, Web Based Programming, Numerical Method, Software Engineering, Computational Statistics)
- **Data Analysis** (Statistical Methods, Regression Analysis, Time Series Analysis)
- **Dissemination Statistics** (Data exploration and visualization, Seminar, Final Year Project)

INSTITUTIONAL COURSES

- Introduction to Economic
- Introduction of Computer Science
- Introduction to Demographic
- Introduction to Geographical Information System
- Introduction to Official Statistics
- Official Statistics
- Advanced Official Statistics
- National Account
- Survey Method
- Human Resources management
- Communication Technique

COURSES (D-4 STATISTICAL COMPUTING)

IN DEPTH & ENRICHMENT COURSE

MINOR IN STATISTICAL INFORMATION SYSTEM

- Special Platform Programming
- Computer and data network systems
- Human and Computer Interaction
- Information System Security
- Data Engineering Technology
- Geographical Information System
- Data Mining

MINOR IN DATA SCIENCE

- Information Retrieval
- Time Series Analysis
- Artificial Intelligence
- Data Visualization and Information
- Big Data Technology
- Geographical Information System
- Data Mining

AN OVERVIEW OF STATISTICS GRADUATES IN INDONESIA

5 – 145
Graduates per year



± 550
Graduates per year

*up until 2021, we have graduated ± 6800 alumnae, including 24 students from Timor Leste

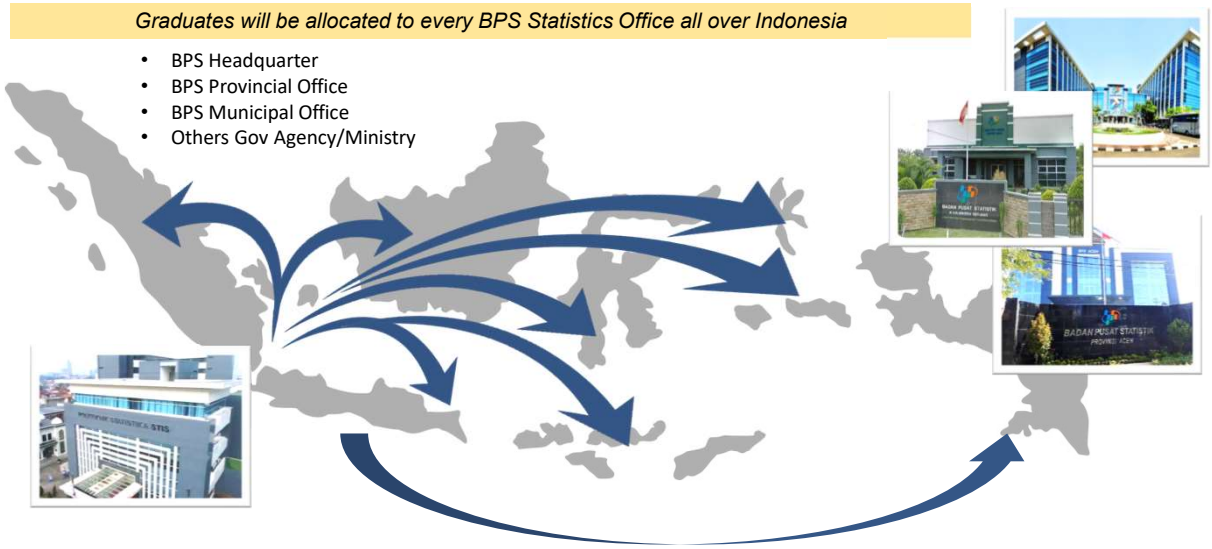
- Obliged to work at BPS/ Other Government Agency/ Ministry) for (min) 2x length of study

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WORK PLACEMENT OF GRADUATES FROM POLITEKNIK STATISTIKA STIS

Graduates will be allocated to every BPS Statistics Office all over Indonesia

- BPS Headquarter
- BPS Provincial Office
- BPS Municipal Office
- Others Gov Agency/Ministry



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SURVEY RESULT

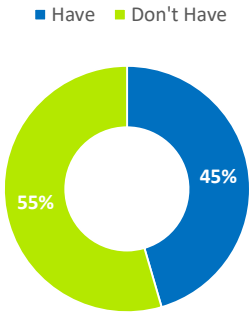
- 11 Statistics Department (FORSTAT members)
- 192 students



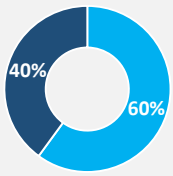
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AN OVERVIEW OF OFFICIAL STATISTICS COURSE ACROSS STATISTICAL INSTITUTES IN INDONESIA

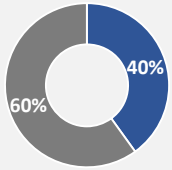
Do you have Official Statistics Course in the Academic Curriculum?



Do you offer Official Statistics Course as Compulsory Course?



Who is responsible for teaching the Official Statistics Course at your programme?



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OFFICIAL STATISTICS COURSE'S MATERIAL COVERAGE

No	Module	Coverage (%)
1	Generic Statistical Business Process Model (GSBPM)	80%
2	National Statistical System	80%
3	Official Statistics Produced by BPS Statistics Indonesia	80%
4	Quality Assurance Framework	80%
5	BPS Statistics Indonesia Job and Function	100%



ALL STATISTICAL INSTITUTES IN INDONESIA HAVE COOPERATION WITH BPS-STATISTICS INDONESIA

FORSTAT

- Internships and Professional Placement
- Guest Lecturer
- Official Statistics Seminar and Workshops

- Providing Data for Student's Final Year Project
- Socialization of census/survey conducted by BPS
- Involving students as survey officer or supervisor during census/survey

BPS STATISTICS INDONESIA

The survey also shows that **98.4% students** want to pursue career as Government Officer

CHALLENGES OF ADAPTATION PROCESS OF FRESH GRADUATES INTO WORK ENVIRONMENT IN BPS STATISTICS INDONESIA

- **Generational gap**
  common problem because of the diversity of generation within the same workplace, especially when older supervisor managed the new young fresh graduates
- **Insufficient softskill**
  communication, integrity, leadership and teamwork
- **Missworkplacement**
  inconsistency between background of education and work assignment



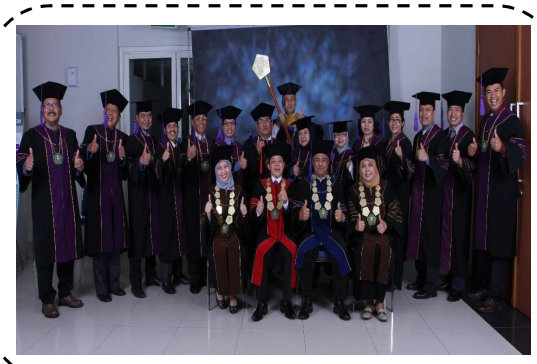
Tracer Study (2018): 82-90 % are satisfied with the (hard) skill and compentecies of our graduates

Thank You

Lecturers

For Better Official Statistics

78 lecturers, holding master degree (60) and doctoral degree (18) graduated from local or overseas universities. Mostly are alumni of Politeknik Statistika STIS



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STUDENT ACTIVITIES

Academic and Non-Academic











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For Better Official Statistics
STUDENT ACTIVITIES
Non-academic Activities
Leadership Training
Workshops
Student Communities
Arek STIS
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