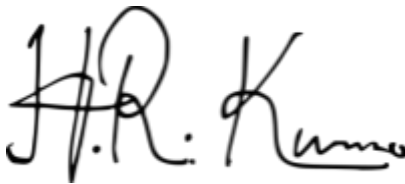






UNIVERSITAS PEMBANGUNAN NASIONAL "VETERAN"
YOGYAKARTA
FACULTY OF SOCIAL SCIENCES AND POLITICAL SCIENCE
UNDERGRADUATE PROGRAM
INTERNATIONAL RELATIONS STUDY PROGRAM

DOCUMENT CODE:
RPS/S1/151/2022/xxx

RENCANA PEMBELAJARAN SEMESTER

Course Names	Course Code	Course Cluster	SKS Credit	Semester	Creation/Update Date
Computational Method in International Relations		Methodology	3 SKS	5(Five)	20/08/2022
AUTHORISATION	Module Description Creator		Cluster Coordinator		Programme Coordinator
	 Hestutomo Restu Kuncoro NIDN 0003019006		 Dr. Machya Astuti Dewi, M.Si NIDN 0003019006		 Dr. Saptopo B. Ilkodar
CAPAIAN PEMBELAJARAN	Graduate Learning Outcomes (GLO) Imposed on This Course				
	PLO 1 (GS-1)	Able to communicate critical and innovative ideas either verbally or in writing in Bahasa and foreign languages within their fields of expertise.			
	PLO-2 (KNO-1)	Able to explain the influence of economic, political, and socio-cultural aspects in International Relations to support problem-solving efforts			

N	PLO-3 (SS-1)	Able to analyse political issues as well as international, regional, and national dynamics in contribution to solving them
	PLO-4 (SS-3)	Able to apply the appropriate data collection, processing, and analysis—both qualitatively and quantitatively—in producing scientific works.
	Course Learning Outcomes (CLO)	
	CLO1	Able to develop computational research ideas to examine political issues, international, regional, and national dynamics (SS-1).
	CLO2	Capable of identifying economic, political, and socio-cultural variables in designing computational analysis (KNO-1).
	CLO3	Capable to gather data from digital sources for research purposes (KK3).
	CLO4	Capable of processing data as objects of computational research (SS-3).
	CLO5	Able to apply computational data analysis methods to the study of political issues, international, regional, and national dynamics (SS-3).
	CLO6	Able to gather data from digital sources for research purposes (KK3).
	Competency in each learning stage (Sub-CLO)	
	SUB CLO1	<ul style="list-style-type: none"> • Able to identify forms of social research that apply computational research methods (CLO1)
	SUB CLO2	<ul style="list-style-type: none"> • Able to develop research ideas into computational research questions (CLO1)
	SUB CLO3	<ul style="list-style-type: none"> • Able to operationalize variables/features into appropriate indicators (CLO2)
	SUB CLO4	<ul style="list-style-type: none"> • Able to collect numeric data and text data from social media and news articles (CLO3)
	SUB CLO5	<ul style="list-style-type: none"> • Able to perform data cleaning and pre-processing (CLO4)
SUB CLO6	<ul style="list-style-type: none"> • Able to conduct linear regression and t-tests (CLO5) 	
SUB	<ul style="list-style-type: none"> • Able to perform word frequency and n-gram analysis (CLO5, CLO6) 	

	(SS-3)											
Brief Description	<p>Delivery Language: Bahasa Indonesia</p> <p>This course provides the ability to collect, process, and analyze data using computational methods by utilizing Open Source Intelligence. By the end of the course, students are expected to be able to perform regression analysis, mean comparison, and basic Natural Language Processing (NLP).</p>											
Subject Matter	<ol style="list-style-type: none"> 1. Research idea development 2. Computational research questions 3. Operationalization of variables/features 4. Collection of numeric and text data 5. Data cleaning and pre-processing 6. Linear regression 7. Word frequency and n-gram analysis 8. Network analysis 9. Sentiment analysis 10. Topic extraction 11. Computational research report 											
Learning Resources	<ol style="list-style-type: none"> 1. Salganik, Matthew. (2017). <i>Bit by Bit: Social Research in the Digital Age</i>. New Jersey: Princeton University Press 2. Wickham, Hadley & Golemund, Garrett. <i>R for Data Science</i>. https://r4ds.had.co.nz/ 3. R Studio Primer. https://rstudio.cloud/learn/primers/1.2 4. R for Social Science https://datacarpentry.org/r-socialsci/ 5. Aplikasi R Console. For window: https://cran.r-project.org/bin/windows/base/ for MacOS https://cran.r-project.org/bin/macosx/ 											

6. R Studio IDE. <https://www.rstudio.com/products/rstudio/download/>
7. Barrie C, Ho J (2021). *academictwitteR: an R package to access the Twitter Academic Research Product Track v2 API endpoint*. Journal of Open Source Software, 6(62), 3272. doi: 10.21105/joss.
8. Wickam et al (2019). *Welcome to tidyverse* . Journal of Open Source Software
9. Robinson, David & Silge, Julia. (2017) *Text Mining with R*. <https://www.tidytextmining.com>
10. Research by Hestutomo Restu Kuncoro entitled "Pengaruh Diskursus Pro Dan Kontra Pemulangan Foreign Terrorist Fighter Asal Indonesia Terhadap Alternatif Kebijakan Pemerintah Indonesia"
11. Research by Hestutomo Restu Kuncoro entitled "Populisme dalam Diskursus Kampanye Satelit di Media Sosial: Pemetaan dan Analisis Dampak terhadap Proses Demokrasi di Indonesia dan Filipina"
12. Research by Hestutomo Restu Kuncoro entitled "Dinamika Diskursus dan Framing Isu ISIS di Twitter 22 Negara Pada Tahun 2014-2023"

Week	Sub CLO	Assessment		Forms of Learning; Learning Methods; Student Assignments		Lesson Content and Learning Resources	Grade Proportion
		Indicator	Technique and Criteria	Offline (5)	Online (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	<ul style="list-style-type: none"> Able to identify forms of social research that apply computational research methods (CLO1) 	1. Suitability of research ideas	<p>Criterion: research design assessment rubric,</p> <p>Technique: Research Design Assignment</p>	<p>Class Session (150'):</p> <p>1. Seminar,</p> <p>2. Hands-on downloading and installing R Studi</p> <p>Given Assignment (90'):</p> <p>Research Design Assignment</p> <p>Independent Study:</p> <p>Basic Functions in R (90')</p>		<p>Content:</p> <p>1. Module Description</p> <p>2. Introduction to Computational Method</p> <p>3. Download and Install R Console and R Studio</p> <p>Resources:</p> <p>1. Resource 1 Ch I and II</p> <p>2. Resource 5</p> <p>3. Resource 6</p>	6.67 %

2	<ul style="list-style-type: none"> Able to develop research ideas 	<ol style="list-style-type: none"> Idea accuracy Quality of RQ 	Criteria: Research design	Form of Lesson (150'): 1. Lecture, 2.		Content:	6.67 %
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	into computational research questions (CLO1)		assessment rubric, Technique: Research design assignment	Idea inventory discussion, Student Assignment (180'): 1. Research Design Assignment (90'), 2. Basic R function practice (90')		<ol style="list-style-type: none"> Forms of computational methods, Formulation of research questions References: 1. Reference 1 Chapter III, 2. Reference 2	
3	<ul style="list-style-type: none"> Able to operationalize variables/features into appropriate indicators (CLO2) 	<ol style="list-style-type: none"> Variables' suitability with RQ Accuracy of Indicators 	Criteria: Research design assessment rubric, Technique: Research design assignment	Form of Lesson (150'): 1. Lecture, 2. Operationalization of variables practice, 3. Class discussion, Student Assignment (180'): 1. Research Design Assignment		Content: 1. Identification of variables/features, 2. Operationalization of Concepts References: Reference 1 Chapter III	6.67%

4	<ul style="list-style-type: none"> Able to collect numeric data and text data from social media and news articles (CLO3) 	1. Data is collected	Criteria: Data collection and processing task rubric, Technique: Data collection and processing	Form of Lesson (150'): 1. Lecture, 2. Practice, 3. Data collection, 4. Class		Content: Data collection References: Reference 2 Reference 10 Reference 11 Reference 12	15%
			task	discussion, Student Assignment (180') : 1. Data Collection and Processing Assignment			
5-7	<ul style="list-style-type: none"> Able to perform data cleaning and pre-processing (CLO4) 	1. Data tidyness 2. Data cleanliness	Criterion: research design assessment rubric, Technique: Research Design Assignment	Form of Lesson (150'): 1. Lecture, 2. Cleaning and pre-processing data practice, 3. Class discussion, Student Assignment (180') : Data Collection and Processing Assignment		Content: Data cleaning and processing References: Reference 2	15%
8	UJIAN TENGAH SEMESTER						

9	<ul style="list-style-type: none"> Able to conduct linear regression and t-tests (CLO5) 	Proficient in conducting linear regression and t-tests,	Criteria: Rubric for Simple Research Report Assessment, Technique: Final Assignment for Simple	Form of Lesson (150'): 1. Ceramah, 2. Practice of linear regression, t-test, and validity test, Student Assignment		Content: Linear regression, t-test, Validity Test Reference: 1. Reference 2, Chapter 23-24	6.67 %
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			Research Report.	(180'): Data Collection and Processing Assignment (180')			
10	<ul style="list-style-type: none"> Able to perform word frequency and n-gram analysis (CLO5, CLO6) 	Proficient in calculating word and phrase frequencies in texts, Able to create wordclouds Proficient in creating 2-word n-gram tables	Assessment Criteria: Rubric for assessing the Simple Research Report, Technique: Final Assignment - Simple Research Report.	Form of Lesson (150'): 1. Ceramah, 2. Practice of calculating word frequency, 3. Practice of calculating n-grams, Student Assignment (180'): Data Collection and Processing		Content: Word Frequency, N-gram, Wordcloud Reference: Reference 9, Chapter III and Chapter IV	6.67 %

				Assignment			
11	<ul style="list-style-type: none"> Able to conduct simple network analysis (CLO5, CLO6) 	<p>Proficient in creating centrality analysis tables using R application,</p> <p>Able to create network visualizations using Gephy application</p>	<p>Assessment Criteria: Rubric for assessing the Simple Research Report,</p> <p>Technique: Final Assignment - Simple Research</p>	<p>Form of Lesson (150'): 1. Ceramah, 2. Practice of creating graph objects and visualizing, 3. Practice of calculating centrality,</p> <p>Student Assignment</p>		<p>Content: Graph Objects, Network Visualization, Centrality Analysis</p> <p>Reference: 1. Reference 9, Chapter III</p>	6.67 %

			Report.	(180'): Final Project Assignment for Simple Research Report			
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12	<ul style="list-style-type: none"> Able to perform sentiment analysis using lexicons (CLO5) 	<p>Proficient in tokenization</p> <p>Proficient in calculating sentiment scores for tweet data</p>	<p>Assessment Criteria: Rubric for assessing the Simple Research Report,</p> <p>Technique: Final Assignment - Simple Research Report.</p>	<p>Form of Lesson (150'): 1. Ceramah, 2. Practice of tokenization and sentiment score calculation,</p> <p>Student Assignment (180'): Final Project Assignment for Simple Research Report</p>	<p>Content: 1. Tokenization, Sentiment Analysis</p> <p>Reference: 1. Reference 9, Chapter II</p>	6.67 %
13	<ul style="list-style-type: none"> Able to extract topics from text (CLO5) 	<p>Able to identify topics from texts</p>	<p>Assessment Criteria: Rubric for assessing the Simple Research Report,</p> <p>Technique: Final Assignment - Simple</p>	<p>Form of Lesson (150'): 1. Ceramah, 2. Practice of topic modelling,</p> <p>Student Assignment (180'): Final Project Assignment</p>	<p>Content: 1. Topic Modeling</p> <p>Reference: 1. Reference 9, Chapter VI, Chapter VII</p>	6.67 %

			Research Report.	for Simple Research Report		
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14-15	<ul style="list-style-type: none"> Able to write a simple computational research report (CLO6) 	Able to communicate computational analysis results in the form of simple research reports	Assessment Criteria: Rubric for assessing the Simple Research Report, Technique: Final Assignment - Simple Research Report.	Form of Lesson (150'): 1. Ceramah, 2. Coaching for simple research project analysis, Student Assignment (180'): Final Project Assignment for Simple Research Report (180')	Content: Writing Computational Methodology, Interpretation of Analysis Results Reference: 1. Reference 1, Chapter III	6.67 %
16	UJIAN AKHIR SEMESTER					

Assessment Methods and Grade Proportion:

Technique	Grade Proportion
1. Research Design Assignment	20%
2. Data Collection and Processing Task	30%
3. Final Research Report	40%
4. Participation	10%



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COMMUNICATION SCIENCE DEPARTMENT
MASTER OF COMMUNICATION SCIENCE

STUDENT ASSIGNMENT PLAN

Course	Computational Methods in International Relations		
Code		SKS: 3 sks	Semester: 2/Even
Lecturer	1. Hestutomo Restu Kuncoro		

Assignment Form

Research Design

Assignment Title

Research Design with Computational Methods

Sub-CLOs

1. Sub-CLO1: Able to identify forms of social research that apply computational research methods
2. Sub-CLO2: Able to develop research ideas into computational research questions
3. Sub-CLO 3: Able to operationalize variables/features into appropriate indicators

Object

Corporate Communication

Methods/Steps for the Assignment

Part 1: Identifying Forms of Social Research with Computational Methods

Task: You are required to conduct a literature review on current forms of social research that utilize computational research methods. Identify at least five recent research papers, articles, or case studies that apply computational techniques to study social phenomena.

Instructions:

1. Choose a specific social domain or topic of interest (e.g., social media behavior, sentiment analysis, network analysis, etc.).
2. Conduct a thorough literature review to identify relevant research studies that apply computational methods to study the chosen domain.
3. Prepare a summary of each selected research paper, highlighting the computational techniques used, the research questions addressed, and the key findings.

4. Discuss the strengths and limitations of using computational methods in social research.

Part 2: Developing Computational Research Questions

Task: Based on the insights gained from Part 1 and your understanding of computational research methods, develop original research questions that can be explored using computational techniques.

Instructions:

1. Build on the social domain or topic chosen in Part 1 and formulate research questions that are amenable to computational analysis.
2. Ensure that your research questions are specific, relevant, and aligned with the research objectives.
3. Justify the choice of each research question and explain how computational methods can contribute to addressing them effectively.
4. Discuss the potential impact and implications of answering the research questions.

Part 3: Operationalizing Variables/Features

Task: In this part of the assignment, you will learn to operationalize variables or features to be used as indicators in your computational analysis.

Instructions:

1. Select at least three variables or features related to your chosen social domain or topic.
2. Describe each variable or feature and explain its relevance to your research questions.
3. Provide a detailed explanation of how you plan to convert these variables/features into appropriate indicators for computational analysis.
4. Discuss any challenges you foresee in the process of operationalization and how you plan to address them.

Requirements

1. Prepare a well-structured report that includes all three parts of the assignment.
2. Use appropriate citations and references to support your literature review in Part 1.
3. Clearly state the research questions developed in Part 2 and provide logical reasoning behind each question.
4. Present your operationalization process in Part 3 with clarity and detail.

5. The report should be professionally presented with proper formatting, headings, and citations following a specified academic style (e.g., APA, MLA, etc.).

Form and Format of Output

1. The output of the assignment will be a well-structured report containing a literature review on computational research methods in social research, original research questions developed using computational techniques, and a detailed explanation of operationalized variables/features for computational analysis.\

Indicators, Criteria, and Proportion to Final Grade

Schedule

1. 3th Meeting

References

1. Salganik, Matthew. (2017). *Bit by Bit: Social Research in the Digital Age*. New Jersey: Princeton University Press

Assessment Criteria	Learning Outcomes (CLOs)	Weightage
Literature Review: Comprehensive review of recent research papers using computational methods.	CLO1	20%
Research Questions Development: Formulates relevant research questions aligned with the social domain.	CLO2	25%
Computational Analysis Understanding: Demonstrates clear understanding of computational research concepts.	CLO1, CLO2	20%
Operationalization of Variables/Features: Describes relevant variables and their indicators for computational analysis.	CLO3	25%
Critical Thinking and Implications: Analyzes potential impact and demonstrates critical thinking skills.	CLO2	10%



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COMMUNICATION SCIENCE DEPARTMENT
MASTER OF COMMUNICATION SCIENCE

STUDENT ASSIGNMENT PLAN

Course	Computational Methods in International Relations		
Code		SKS: 3 sks	Semester: 2/Even
Lecturer	2. Hestutomo Restu Kuncoro		
Assignment Form			
Practical Assignment			
Assignment Title			
Data Collection and Processing			
Sub-CLOs			
Sub-CLO3: Able to operationalize variables/features into appropriate indicators Sub-CLO4: Able to collect numeric data and text data from social media and news articles			
Object			
Data			

Methods/Steps for the Assignment

Task:

Choose a research topic or domain related to social media or news articles. Based on the chosen topic, collect numeric and text data using R software from relevant sources, such as social media platforms (e.g., Twitter, Facebook) and online news articles.

Instructions:

1. Define the Research Topic: Clearly specify your research topic and objectives, explaining its relevance to the field of study.
2. Data Collection Plan: Identify suitable data sources and APIs for collecting social media and news data related to your chosen research topic. Explain your data collection plan, including the variables/features you intend to collect and their significance.
3. Implement Data Collection: Develop R scripts to fetch numeric data (e.g., likes, retweets, shares) and text data (e.g., tweets, article content) from the identified sources.
4. Data Cleaning and Pre-processing: Perform data cleaning and validation to ensure the accuracy and reliability of the collected data. Organize the data in a structured format for further analysis.
5. Documentation and Analysis: Provide clear comments and explanations within the R code to describe the data collection and processing steps. Present a summary of the collected data and discuss any insights or observations that emerge from the analysis.

Submission Guidelines:

1. Submit the R script or R Markdown file containing the data collection and processing code.
2. Include a written report detailing the research topic, data collection plan, and an explanation of the collected data's relevance to the research objectives.
3. Ensure that your R code is functional, well-documented, and free from errors.

Note: The assignment primarily assesses your ability to collect numeric and text data from social media and news articles using R software (CLO4) and your understanding of operationalizing variables/features in the context of data collection (CLO3). Please adhere to the instructions provided by your instructor or institution for submission and grading.

Form and Format of Output

1. R Code: The R code is the main output of the assignment, provided as an R script or R Markdown file. It contains the code written by the student to perform data collection and processing tasks. The code will include commands and functions to collect numeric data (e.g., likes, retweets, shares) and text data (e.g., tweets, article content) from social media and news articles using R software. The R code is essential as it demonstrates the student's proficiency in using R for data collection and manipulation.
2. Final Result (Excel File - xlsx): The final result of the assignment is the processed data saved in an Excel file format (xlsx). The data collected from social media and news articles will be cleaned, structured, and organized as per the data collection plan.. The Excel file allows easy visualization and further analysis of the data.

Indicators, Criteria, and Proportion to Final Grade

Schedule

1. 6th Meeting

References

1. Wickham, Hadley & Grolemund, Garrett. *R for Data Science*. <https://r4ds.had.co.nz/>
2. R Studio Primer. <https://rstudio.cloud/learn/primers/1.2>
3. R for Social Science <https://datacarpentry.org/r-socialsci/>
Aplikasi R Console. For window: <https://cran.r-project.org/bin/windows/base/> | for MacOS <https://cran.r-project.org/bin/macosx/>

Assessment Criteria	Learning Outcome (CLO)	Weightage
Data Collection Proficiency	CLO4,5	30%
Data Cleaning and Validation	CLO4,5	25%
Data Processing and Organization	CLO4,5	25%
R Code Functionality and Documentation	CLO4,5	20%



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COMMUNICATION SCIENCE DEPARTMENT
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STUDENT ASSIGNMENT PLAN

Course	Computational Methods in International Relations		
Code		SKS: 3 sks	Semester: 2/Genap
Lecturer	Hestutomo Restu Kuncoro		

Assignment Form

Report Writing

Assignment Title

Simple Computational Research Report

Sub-CLOs

- Sub-CLO-6: Able to write a simple computational research report
- Sub-CLO-7: Able to conduct linear regression and t-tests
- Sub-CLO-8: Able to perform word frequency and n-gram analysis
- Sub-CLO-9: Able to conduct simple network analysis
- Sub-CLO-10: Able to perform sentiment analysis using lexicons
- Sub-CLO-11: Able to extract topics from text

Object

Computational Problem

Methods/Steps for the Assignment

Task:

1. Choose a Method: Select one method from the list below for your text data analysis:
 - a. Word Frequency and N-gram Analysis
 - b. Simple Network Analysis
 - c. Sentiment Analysis using Lexicons
 - d. Topic Extraction from Text
2. Perform the Chosen Method: Implement the selected computational method on the preprocessed text data. Use appropriate tools and libraries in R or any other programming language you prefer.

3. Analysis and Interpretation: Present and interpret the results of your chosen method. Use visualizations, tables, and descriptive analysis to explain your findings and insights.
4. Write a Computational Analysis Report: Prepare a comprehensive report summarizing the entire process. Include the details of the chosen method, data preprocessing steps, analysis results, and your interpretations.

Submission Guidelines:

1. Submit the computational analysis report, clearly mentioning the chosen method (a, b, c, or d).
2. Include the R code or code in the chosen programming language that demonstrates the implementation of the selected method.
3. Provide a description of the dataset used, the data preprocessing steps, and any additional insights gained from the analysis.

Note: Ensure ethical data collection and analysis practices are followed, and proper citation is provided for the data source. The report should showcase your proficiency in performing computational analysis on text data using the chosen method and demonstrate your understanding of the learning outcomes related to text data analysis.

Form and Format of Output

1. R Code
2. Report

Indicators, Criteria, and Proportion to Final Grade

Schedule

1. 16th Meeting

References

4. Wickham, Hadley & Grolemund, Garrett. *R for Data Science*. <https://r4ds.had.co.nz/>
5. R Studio Primer. <https://rstudio.cloud/learn/primers/1.2>

Assessment Criteria	Weightage
Implementation of Chosen Method	50%
Analysis and Interpretation of Results	40%
Computational Analysis Report	10%

6. R for Social Science <https://datacarpentry.org/r-socialsci/>
7. Aplikasi R Console. For window: <https://cran.r-project.org/bin/windows/base/> | for MacOS <https://cran.r-project.org/bin/macosx/>