Natural Language Processing for Textual Analysis of Political Speeches Training Course

Professional Development Training Course Outline

Category	Political Science and International Relations	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Natural Language Processing for Textual Analysis of Political Speeches Training Course is a deep dive into the practical applications of AI and computational linguistics. We'll explore how to leverage cutting-edge NLP techniques to systematically and objectively analyze the vast, unstructured data of political discourse. From sentiment analysis to topic modeling, you'll gain the skills to uncover hidden patterns, ideological shifts, and rhetorical strategies that are often missed by traditional human-led analysis. This program focuses on hands-on, project-based learning, transforming you from a novice into a skilled practitioner capable of dissecting complex political rhetoric with data-driven precision.

This course is designed for anyone looking to bridge the gap between social science and data science. We'll cover everything from the foundational concepts of language processing to the implementation of state-of-the-art transformer models. You will learn to build powerful text analysis pipelines, allowing you to not only study political communication but also to forecast public opinion, detect misinformation, and assess the effectiveness of political campaigns. By the end, you'll be equipped with a robust and versatile skill set, making you a valuable asset in the fields of political science, data journalism, and digital humanities.

Programme Curriculum

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Course Objectives

- **Master** the fundamental concepts of Natural Language Processing (NLP) and its applications in social sciences.
- **Implement** text preprocessing techniques for cleaning and preparing political speech data.
- **Apply** various NLP libraries and frameworks, including NLTK, spaCy, and Hugging Face.
- **Conduct** detailed sentiment analysis to quantify the emotional tone of political rhetoric.
- **Perform** topic modeling to identify and categorize key themes within a corpus of speeches.
- **Utilize** Named Entity Recognition (NER) to extract key political figures, organizations, and locations.
- **Build** predictive models for forecasting political outcomes based on linguistic patterns.
- **Analyze** rhetorical devices and linguistic style using advanced computational methods.
- **Develop** and fine-tune Transformer models like BERT for specific political text analysis tasks.
- **Visualize** complex textual data and analytical findings for clear and impactful presentations.
- **Evaluate** the ethical considerations and potential biases in political text analysis using AI.
- **Create** an end-to-end NLP pipeline for a real-world political discourse analysis project.
- **Stay** current with emerging trends in NLP, including Generative AI and Large Language Models (LLMs).

Target Audience

- Political Scientists.
- Data Journalists.
- Data Scientists & Analysts.
- Public Policy Researchers.
- Campaign Managers & Political Consultants.
- Graduate Students.
- Digital Humanities Scholars.
- AI/ML Engineers

Course Modules

Module 1: Introduction to Computational Linguistics

- What is NLP and its relevance to political science?

- Overview of the course and its objectives.
- Setting up the Python environment (Anaconda, Jupyter Notebook).
- Introduction to unstructured text data and its challenges.
- Case Study: The evolution of political rhetoric over a decade.

Module 2: Text Preprocessing Essentials

- Tokenization, stemming, and lemmatization.
- Stop word removal and text normalization.
- Handling special characters and political jargon.
- Preparing datasets for analysis.
- Case Study: Preprocessing a State of the Union address.

Module 3: Feature Engineering from Text

- Creating a Bag-of-Words model.
- Understanding TF-IDF and its importance.
- Advanced techniques: n-grams and word embeddings (Word2Vec).
- Practical implementation of feature extraction.
- Case Study: Comparing the most important words in Democratic vs. Republican speeches.

Module 4: Sentiment Analysis

- Lexicon-based vs. machine learning approaches.
- Building a sentiment classifier using Naive Bayes.
- Evaluating sentiment model performance.
- Polarity and subjectivity in political statements.
- Case Study: Analyzing the sentiment of speeches during a national crisis.

Module 5: Topic Modeling with LDA

- Introduction to Latent Dirichlet Allocation (LDA).
- Determining the optimal number of topics.
- Interpreting and labeling topics.
- Visualizing topic distribution over time.
- Case Study: Uncovering policy themes in a corpus of presidential debates.

Module 6: Named Entity Recognition (NER)

- What are named entities and why are they important?
- Using spaCy for out-of-the-box NER.
- Training a custom NER model for political entities.
- Extracting relationships between entities.
- Case Study: Tracking all mentions of specific politicians and policies in a campaign.

Module 7: Text Classification

- Supervised learning for text data.
- Training a Support Vector Machine (SVM) classifier.
- Cross-validation and hyperparameter tuning.
- Evaluating classification metrics (precision, recall, F1-score).
- Case Study: Automatically classifying speeches by political party.

Module 8: Introduction to Deep Learning for NLP

- From traditional ML to neural networks.
- Recurrent Neural Networks (RNNs) and LSTMs.
- Word embeddings revisited: GloVe and FastText.
- Setting up TensorFlow/PyTorch for NLP tasks.
- Case Study: Using an LSTM to predict the rhetorical direction of a speech.

Module 9: The Transformer Architecture

- Understanding the attention mechanism.
- Introduction to the Transformer model.
- Overview of BERT and its variants.
- Using the Hugging Face Transformers library.
- Case Study: Fine-tuning a BERT model for stance detection in political statements.

Module 10: Political Rhetoric and Linguistic Style Analysis

- Identifying rhetorical devices with NLP.
- Analyzing metaphor and analogy usage.
- Quantifying linguistic complexity and readability.
- Speaker **signature analysis**.
- Case Study: Comparing the speaking style of two different political leaders.

Module 11: Detecting Misinformation and Disinformation

- Identifying "fake news" and misleading claims.
- Building a fact-checking pipeline.
- Leveraging NLP for claim verification.
- Understanding the role of generative AI in spreading misinformation.
- Case Study: A pipeline for flagging potentially misleading claims in a political speech.

Module 12: Data Visualization for Political Texts

- Creating meaningful visualizations from text data.
- Word clouds, bar charts, and network graphs.
- Using libraries like Matplotlib, Seaborn, and Plotly.
- Telling a data-driven story with visuals.
- Case Study: Visualizing the key themes of a political party's platform over time.

Module 13: Ethical Considerations in NLP

- Understanding algorithmic bias in language models.
- The societal impact of NLP on political discourse.
- Ensuring fairness, accountability, and transparency.
- Privacy and data collection issues.
- Case Study: Discussing a controversial political NLP application and its ethical pitfalls.

Module 14: Final Project: End-to-End Analysis

- Defining a political analysis problem.
- Data acquisition and pipeline design.

- Model training and evaluation.
- Presenting findings and creating a final report.
- Case Study: A full project on analyzing and predicting public opinion on a key policy issue.

Module 15: The Future of NLP in Politics

- Emerging trends: **Generative AI**, **LLMs**, and **multimodal analysis**.
- The role of NLP in political forecasting and elections.
- Career paths in computational social science.
- Final Q&A and networking session.
- Case Study: Exploring the potential of using LLMs to simulate political debates.

Training Methodology

- **Interactive Lectures:** Concise and focused explanations of core concepts.
- **Live Coding Demonstrations:** Step-by-step walkthroughs of NLP techniques in Python.
- **Hands-on Exercises & Assignments:** Reinforce learning with practical tasks using real-world datasets.
- **Case Studies:** In-depth analysis of specific political events and speeches to apply learned concepts.
- **Capstone Project:** A comprehensive, final project that requires students to build a full NLP pipeline from scratch.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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