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Data-Driven Research and AI Tools for International Relations and European Studies

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How you can contact me

– Online

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– Offline

- Office 4.26
- Consultation hours
 - TUESDAY 12 00 – 13 00
 - THURSDAY 12 00 – 13 00



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Introduction to the course

Data-Driven Research & AI Tools for IR-ES

What This Course is Really About

- The main goal is to go through all steps of research process and utilize data and AI tools throughout the process
- We will explore
 - Where to find useful data for IR-ES 🌐📊
 - How to decide whether data is reliable and relevant 🤔
 - How to analyze and extract meaning from both **numbers** (quantitative 📈) and **text** (qualitative 📖) – only chosen methods
 - How AI can help streamline research and decision-making 🤖
 - How to use AI tools **responsibly** and **ethically** ⚖️

Data-Driven Research & AI Tools for IR-ES

What This Course is Really About

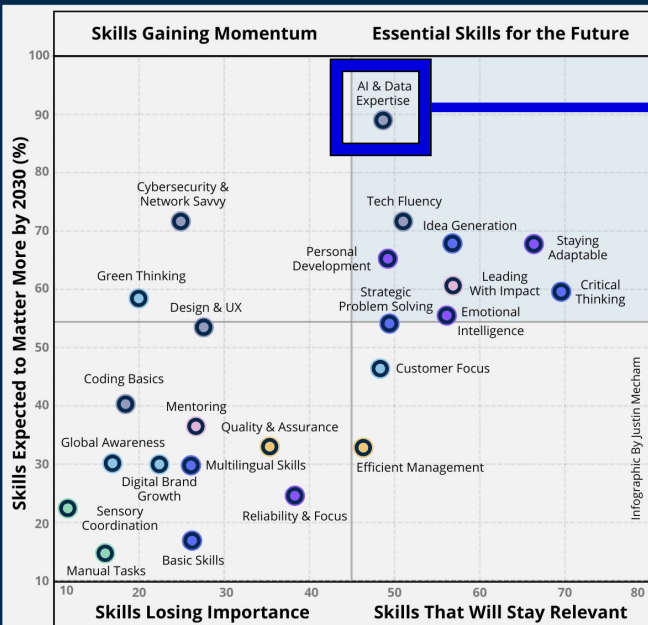
- This course could help you
 - **Think critically** about information and data
 - **Work smarter, not harder** with AI-assisted research
 - **Gain practical skills** that will be useful beyond university
- *By the end, (hopefully) you'll be able to use data and AI to answer real-world questions in International Relations and European Studies!*

Data-Driven Research & AI Tools for IR-ES

Why this course matters for you

TOP FUTURE SKILLS

SKILLS EMPLOYERS WILL VALUE MOST BY 2030



Mastering data and AI tools isn't just for research — can really be a career game changer

Source:
Justin Mecham. "Most people are preparing for the wrong future ...,"
LinkedIn post, February 11, 2025, Available [here](#).

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Data-Driven Research & AI Tools for IR-ES

Why this course matters for you

- Where will these skills be useful?
 - **Academia & Research** – Writing your thesis, conducting evidence-based studies.
 - **Policy & Government** – Supporting decision-making with data-driven insights in ministries, think tanks, and international organizations.
 - **Business & Consulting** – Making sense of complex markets, geopolitical risks, and global trends.
 - **Media & Journalism** – Analyzing narratives, fact-checking, and using AI to extract insights from massive datasets.
 - **Everyday Professional Tasks** – Managing information overload, summarizing reports, improving presentations, and automating repetitive work.

Data-Driven Research & AI Tools for IR-ES

What you will learn

- **After completing this course, you will:**
 - Be able to find & use the right data
 - Locate, access and evaluate relevant qualitative & quantitative data sources
 - Decide when to use qualitative vs. quantitative data to answer research questions
 - Assess data credibility and limitations – ensuring responsible and informed use
 - Leverage AI to support key research activities
 - Streamline some steps of literature reviews and summarize academic sources
 - Be more familiar with options to apply AI-driven techniques (text mining, topic modeling, predictions) to extract insights from data
 - Use AI to enhance research methodology
 - Be able to prepare more engaging visualisations with AI tools, enhance the communication of results in both academic and non-academic settings

Data-Driven Research & AI Tools for IR-ES

What you will learn

- Think ethically about AI & research

 - Apply ethical principles to the collection, processing and interpretation of data

 - Ensure transparency and accountability in AI-assisted research

 - Navigate the challenges of responsible AI use

 - Recognize and address biases in AI-generated insights

 - Balance AI efficiency with human critical thinking

- By the end of the course, you will have developed a structured research project, demonstrating ability to

 - work with diverse data sources

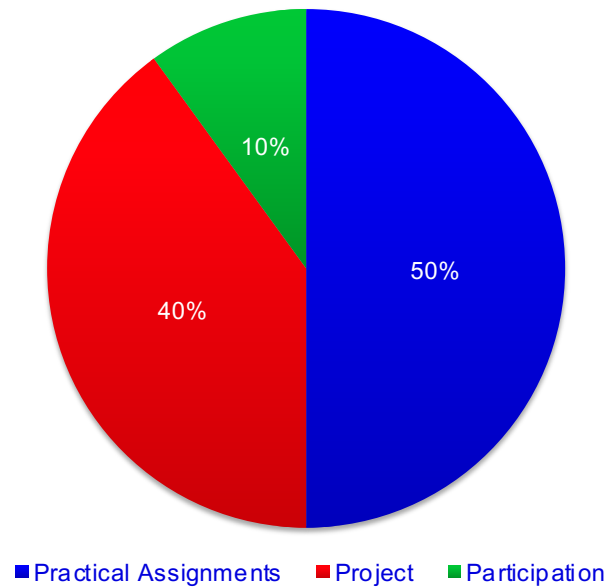
 - use AI tools responsibly

 - effectively communicate their findings in both academic and professional settings

Data-Driven Research & AI Tools for IR-ES

How to pass the course

Assessment



Data-Driven Research & AI Tools for IR-ES

How to pass the course

- PRACTICAL ASSIGNMENTS – **3** out of following
 - Literature review [21st March]
 - Research plan [11th April]
 - Data source assessment [11th April]
 - Visual presentation of results [9th May]
 - Targeted presentation of conclusions [16th May]
- Assignments will be graded individually, and students will have the opportunity to revise the one with the lowest score as part of their final project
- Each practical assignment is graded on a scale of **0-10 points**.

Maximum 30 points

Data-Driven Research & AI Tools for IR-ES

How to pass the course

- Small-scale research study that integrates key course concepts and demonstrates students' ability to work with qualitative and/or quantitative data sources using AI tools
 - Written Report
 - Oral Presentation
- Maximum 24 points
- Each part is graded on a scale of **0-12 points**.

Data-Driven Research & AI Tools for IR-ES

How to pass the course

– ACTIVE PARTICIPATION IN CLASSES

- Not mandatory
- Each student can earn **0-6 points**.

Maximum 6 points

To successfully pass the course, students must accumulate at least **36 points out of the maximum 60**, regardless of how the points are distributed across the different assessment components.

Data-Driven Research & AI Tools for IR-ES

Lectures outline

1. Introduction to Data-Driven Research and AI in IR-ES, Overview of Key Concepts (18th February)
2. Constructing a Research Question (25th February)
3. Literature Review (4th March)
4. Research Planning and Methodology Selection (11th March)
5. Identifying and Assessing Data Sources – Qualitative data (18th March)
6. Identifying and Assessing Data Sources – Quantitative data (25th March)
7. Data Processing - *Video lecture* (1st April)

Data-Driven Research & AI Tools for IR-ES

Lectures outline

8. Reading Week (8th April)
9. Techniques for Qualitative Data Analysis (15th April)
10. Techniques for Quantitative Data Analysis (22nd April)
11. Visualizing and Presenting Research Findings (29th April)
12. Targeted Communication of Research Results (6th May)
13. Discussion on role of AI in IR-ES / Early exam date (13th May)

Questions and Suggestions Box



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Key concepts

Introduction to core terms

Research

- Systematic process of inquiry
- Aimed at discovering, interpreting and revising facts
- Involves series of steps designed to
 - Gather data
 - Analyze data
 - Interpret data
- Designed to answer specific question or solve problems
- Not only academic research, or scientific research – research process is involved in most of career paths

Introduction to core terms



Introduction to core terms

Data

- Facts / figures / other relevant information
- Foundation upon which research and knowledge is built

- Collected different ways
- Can have different form

Introduction to core terms

Data

– PRIMARY vs SECONDARY

- Primary = collected directly (from first hand experience, original research)

e.g. Surveys, interviews, experiments, observations

Direct evidence – assured relevance and accuracy

- Secondary = previously collected, processed and made available to others

e.g. Government reports, academic journals

Provides context, more data available, save resources

Introduction to core terms

Data

- QUALITATIVE x QUANTITATIVE
 - Qualitative = non-numerical, captures concepts, opinions, experiences
 - e.g. Interviews, open-ended survey responses, case studies, legal documents
 - Provides depth, concept, enabling deeper understanding of complex issues
 - Quantitative = numerical data, can be measured and quantified
 - e.g. Survey ratings, statistical records, scores
 - Facilitates objective comparison, generalization

Introduction to core terms

Data

– STRUCTURED vs UNSTRUCTURED

- Structured = organized, formatted, stored in predefined structure, easily searchable and analyzable

e.g. Statistics, public opinion survey results, UN voting results

Usually stored in tables, databases, spreadsheets

- Unstructured = data that does not follow a predefined structure, often text-heavy, multimedia-based or complex

e.g. Diplomatic speeches, news articles, social media discussions, political manifestos

Lacks a clear, organized format – requires processing and categorization

Introduction to core terms

Artificial Intelligence

- What we mean by AI in this course?
- AI is broad term, but we focus on:
 - **Generative AI** – AI that creates text, images, and even data (e.g., ChatGPT, Claude, Gemini)
 - **Specialized AI applications** – AI tools for literature reviews, text analysis, and visualization
 - (Possibly) A touch of **Machine Learning** – understanding AI's role in identifying patterns and making predictions
- *What is Generative AI?*
 - AI that generates new content based on input

Why does data matter?

- Empirical support for theories
 - Theories need evidence!
 - Help build more convincing arguments
- Policy implications: using data to inform decisions
 - Data-driven insights can help with more accurate predictions, can shape negotiations
- Enhancing credibility and reproducibility in research
 - Research findings must be transparent, replicable and evidence-based
- *Can you think of any examples of how data and AI improved/enabled research in IR-ES?*

Examples from IR-ES

Real-Time Data Analysis and Crisis Management Arab spring

- During events in the spring of 2011, researchers and policy makers used **social media data** to monitor **protests** and **public sentiment** in real time
- Allowed for a better understanding of evolving situation
- Enabled more responsive decision-making

Examples from IR-ES

Mathematical Models for Global Health Diplomacy COVID-19 pandemic

- During the COVID-19 pandemic, **AI** was used to **model** spread of the virus
- It helped to assess the effectiveness of different containment measures
- Guidelines for coordination of international response
- AI-driven analysis of **global health data** informed health policies and diplomatic negotiations regarding vaccine distributions and travel restriction

Examples from IR-ES

Economic and Social Statistics for Evaluation of Programs Conditional Cash Transfers Programs in Latin America

- CCT programs – social welfare initiatives – to support low-income families (conditioned by certain behaviour e.g. children school attendance, regular medical check-ups)
- Evaluation – 2 very successful cases – Mexico, Brazil
- Programs evaluated based **on economic and social statistics** – to determine their effectiveness and impact on poverty reduction, education and health
 - E.g. **School Enrollment and Attendance Rates, Dropout Rates, Vaccination Rates, Nutritional Status, Household Consumption Data**

Examples from IR-ES

Climate Data for Adaptation of Funding International Adaptation Fund for Pacific Islands

- Data analysis helped with the effective allocation of the resources, designing appropriate strategies, monitor the outcomes
- Decisions based on sea level rise projections, cyclone frequency, water security – from **satellite observations** and **climate models**
- Also **socio-economic vulnerability data** – to identify the most effective measures

Examples from IR-ES

Online Research for Human Rights Monitoring Rohingya Crisis in Myanmar

- forced mass displacement of people, widespread atrocities
- Restricted access to the conflict areas - documented through online research
- **Social media** and **crowdsourced** evidence – photos, video, testimonies
- **Satellite imagery** analysis – village burnings, forced displacement
- **Big data** and **AI** used to detect patterns of violence and displacement

Next lecture

- Research process is complex – the first step - define research problem
 - How to take first steps more effectively?
 - What are ways of streamlining the process
 - How can we engage AI?