HONG KONG BAPTIST UNIVERSITY
Faculty of Science

1. **Course Code and Course Title**
GCAP3226 Empowering citizens through data: participatory policy analysis for Hong Kong *(3,3,0)*

2. **No. of Units**
3

3. **Offering Department**
Department of Mathematics

4. **Pre-Requisite**
Nil

5. **Co-Requisite / Anti-Requisite (if any)**
Nil

6. **Aims & Objectives**
In this course, the central focus is on enhancing students' understanding and application of data-informed public policymaking within the Hong Kong context. The objective is to equip students with the analytical tools and interdisciplinary approaches necessary to assess and influence policy decisions effectively. By integrating quantitative analysis with qualitative insights, the course aims to foster a comprehensive understanding of how data-driven strategies can be employed to address complex social issues, aligning with specific targets of the United Nations' Sustainable Development Goals (SDGs).

Students will evaluate how much Hong Kong's government uses data in policymaking, focusing on transparency, accountability, and effectiveness. Through practical projects and case studies, they will explore the impact of data-informed decisions in areas such as public transportation, health, and environmental management. A significant component of the course includes opportunities for students to request data from the Hong Kong government and engage directly with lawmakers (LegCo members) and district council members. This experiential learning approach enables students to gain firsthand insights and practical experience in the policymaking process.

Ultimately, the course prepares students to become active agents of change in society. They will gain the competencies needed to navigate and influence the complex landscape of global sustainability challenges, equipped with the tools to implement and advocate for policy changes that contribute to the SDGs. This holistic approach not only enhances their analytical and expressive capabilities but also instills a commitment to lifelong learning and civic engagement in a globalized world.

7. **Course Intended Learning Outcomes (CILOs)**

CILO	By the end of the course, students should be able to:	PILO Alignment

1	Apply case study methods to evaluate data governance practices in specific public policies and demonstrate how improved data collection and transparency can enhance decision-making in Hong Kong.	2,3
2	Critically review the data governance policies and practices of the Hong Kong government through identifying missing data that should have enhanced decision-making.	3,5
3	Effectively communicate findings through visual presentations and narratives tailored for stakeholders including the Hong Kong SAR government, NGOs, and the public.	4,5
4	Utilize AI tools comprehensively to support the achievement of the aforementioned CILOs by assisting in data analysis, model building, coding, and the development of engaging narratives and presentations.	5

8. **Teaching & Learning Activities (TLAs)**

CILO No.	TLAs
1	**Lectures on Public Policy Foundations** Initial lectures will provide students with essential background knowledge necessary for understanding the public policy landscape in Hong Kong. Topics covered will include the role and structure of the Hong Kong government, the standard procedures in public policymaking, and the relationship between public policy and legislation. Co-taught sessions where the Mathematics teacher introduces data-driven governance and the Language teacher discusses communication strategies.
1,2,3	**Policy Analysis Workshops** These workshops will demonstrate the application of data-informed approaches in policymaking through practical examples. Common data visualization and analysis techniques that are useful in public policymaking will be introduced. Students will analyze case studies involving the decision-making processes for areas such as public transportation efficiency, solid waste management planning, and public health promotion strategies. These sessions aim to show how data supports effective policy decisions. Both teachers lead workshops to integrate data analysis techniques with critical evaluation and communication strategies.
2,3,4	**Experiential Learning Projects** In these projects, students will delve into the practical aspects of public policy by selecting a relevant topic, formulating research questions, and conducting field research within the community to gather essential data and insights. The objective is to apply classroom knowledge in real-world settings, enhancing their understanding through active engagement. To facilitate collaborative brainstorming, project planning, and execution, teams will use digital platforms such as Miro for visual collaboration and Google Workspace for document sharing, task management, and real-time updates. These tools will simulate real-world digital teamwork environments often required in professional policymaking. Key features of this TLA include opportunities for students to meet and interact with Legislative Council (Legco) lawmakers, district council members, and community

	leaders, where they can present their findings and discuss their ideas. These interactions are designed to extend the impact of their research by circulating their reports among these key stakeholders, thus directly contributing to policy discourse and development. Upon completion of the field research, students will return to the classroom to analyze their data using the techniques previously learned. They will prepare comprehensive reports and presentations to share their insights with peers, synthesizing their field experiences with academic research to offer well-rounded perspectives on public policy challenges and solutions. Both teachers collaborate to guide students in applying data analysis and communication skills during fieldwork and report preparation. (Note: meetings with lawmakers will be arranged subject to the availability of the Legco members and other factors; alternatively, students to submit their written reports to the Legislative Council in lieu of face-to-face meetings).
1,2	**Computer based practice** Students will learn to implement data visualization techniques and commonly used analytical models by using computer software.
1,2,3,4	**AI-Enhanced Storytelling Sessions** In these workshops, students will learn how to integrate AI tools across various aspects of their coursework, enhancing their ability to analyze data, build models, and craft compelling narratives. Additionally, students will use platforms like Miro to collaboratively develop storyboarding and conceptual frameworks for their presentations, and Google Slides to create engaging visual narratives. These tools will enhance teamwork and ensure that storytelling is not only data-driven but also visually impactful and polished. Students will engage in practical exercises that demonstrate the application of AI in public policy analysis, from data visualization to predictive modeling. These skills are crucial for enhancing their research and presentations, making them more effective and impactful for diverse audiences including policymakers, NGOs, and the general public. Additionally, the workshops will provide students with opportunities to interact directly with key stakeholders such as Legislative Council members and NGO managers. These interactions will allow students to apply their newly acquired AI skills in real-world contexts, receiving constructive feedback that will further refine their techniques and approaches. Co-taught sessions where the Language teacher introduces AI-driven storytelling tools, and the Mathematics teacher integrates these tools with quantitative analysis.

9 **Assessment Methods (AMs)**

Type of Assessment Methods	Weighting	CILOs to be Address	Description of Assessment Tasks

Project report (group)	30%	1,2,3,4	In this group assignment, students will collaborate to create a comprehensive project report of approximately 3,000 words, accompanied by a poster that visually summarizes their findings and recommendations on a specific public policy issue in Hong Kong. This assessment aims to encompass all four CILOs, ensuring a holistic approach to learning and application of skills. Both teachers will provide feedback on drafts, ensuring students apply interdisciplinary insights to produce well-rounded recommendations. This group project not only encourages collaboration and application of public policy analysis skills but also leverages modern AI tools to enhance research and communication capabilities, making it a comprehensive assessment that aligns with the educational goals of all four CILOs.
In-class presentations (group)	20%	1	Throughout the semester, each group will be required to deliver two in-class presentations, each lasting about 8 minutes. These presentations are designed to provide progress updates or serve as final summaries of their group project reports, effectively covering all four CILOs. These in-class presentations provide a dynamic platform for students to communicate their findings and engage in meaningful dialogue with peers, instructors, and external stakeholders. This interaction not only enhances learning but also offers critical feedback that can be used to refine their approaches and outcomes. By addressing all four CILOs, these presentations ensure a comprehensive evaluation of students' skills and knowledge in public policy analysis, data governance, effective communication, and the application of AI tools.
Reflective essays (individual)	20%	1,2,3	Students will submit three AI-led reflective essays throughout the course, each around 200 words, ensuring a focused reflection on specific aspects of public policy analysis and communication. The AI-led component of the essays involves a customized chatbot that aids the students in their reflective process through guided questions and prompts. This interaction aims to enhance critical thinking and self-awareness by providing personalized feedback and suggesting alternative perspectives or deeper insights into their experiences. By focusing these essays on CILOs 1 to 3, students can deeply engage with their learning outcomes in public policy analysis and communication, reserving more technical reflections on the use of AI tools for a separate assessment aligned specifically with CILO 4.

Human-AI collaboration report (individual)	20%	1,2,3,4	Students will compile an individual portfolio of approximately 2,000 words, detailing their exploration of how human collaboration with Artificial Intelligence (AI) tools can enhance the understanding and solution of public policy issues. This comprehensive report will address all four CILOs, emphasizing the versatile applications of AI in public policy analysis. In addition, the report will address ethical considerations associated with AI use in public policy, such as potential biases, privacy issues, and the need for transparency. By integrating CILO 1 into this assessment, the report emphasizes the critical role of AI in enhancing the analysis of decision-making processes, ensuring a holistic approach to how AI can improve public policy outcomes.
In-class exercise (individual)	10%	1,2	Throughout the course, students will participate in two individual in-class data analysis exercises. These exercises are specifically designed to ensure that students gain practical, hands-on experience with data visualization and analysis tools that are integral to understanding public policy decision-making and data governance.

10. **Assessment Rubrics**

To be determined by the instructors.

11. **Course Intended Learning Outcomes and Weighting**

Content	CILO No.	Teaching (in hours)
Week 1-3 Lectures	1,2	9
Week 4 Need analysis – project topic selection	1,2	3
Week 5 & 6 Policy analysis workshops + computer-based practice	1,2,3	6
Week 7 Field studies – project data collection	2	3
Week 8 & 9 Policy analysis workshops + computer-based practice	1,2,3	6
Week 10-12 Storytelling sessions (consultation & rehearsal for the experiential learning projects)	3,4	9
Week 13 Engaging with Policy Makers and Community Leaders: Presentations	4	3

The above schedule is tentative and may be revised according to the changing needs of the students taking the course and the availability of flipped classroom materials developed by the course team. Group meetings and AI consultation sessions may be organized in lieu of lectures to offer more personalized learning experience.

12. **Textbooks / Recommended Readings**

Textbooks:

1. Winston, W. L. (1987). *Operations research: applications and algorithms* (Vol. 1). Duxbury Resource Center.
2. Meadows, D. H. (2008). *Thinking in systems: A primer*. Chelsea Green Publishing.
3. Cropf, R., A. (2016). *Ethical Issues and Citizen Rights in the Era of Digital Government Surveillance*. Hershey, PA: IGI Global.
4. Huff, D. (2023). *How to lie with statistics*. Penguin UK.
5. Hubbard, D. W. (2014). *How to measure anything: Finding the value of intangibles in business*. John Wiley & Sons.
6. Mollick, E. (2024). *Co-Intelligence: Living and Working with AI*. Portfolio.
7. Baker, N. (2020). *Baseless: My Search for Secrets in the Ruins of the Freedom of Information Act*. Penguin Books.

References:

8. Head, B. W. (2007). Community Engagement: Participation on Whose Terms? *Australian Journal of Political Science*, 42(3), 441–454. https://doi.org/10.1080/10361140701513570
9. Gal, I., & Ograjenšek, I. (2017). Official statistics and statistics education: Bridging the gap. *Journal of Official Statistics*, *33*(1), 79-100.
10. Sachs, J.D., Lafortune, G., Fuller, G. (2024). The SDGs and the UN Summit of the Future. *Sustainable Development Report 2024*. Paris: SDSN, Dublin: Dublin University Press.
11. https://sdgtransformationcenter.org/news/press-release-sustainable-development-report-2024

13. **Course Content**

Week	Topics	Teaching (in hours)
1	Foundations of Data-Driven Public Policy and Governance	3
2	Applied Mathematical Models and Project-Based Learning in Public Policy	3
3	Data Governance and Its Impact on Public Policy Effectiveness	3
4	Need analysis – project topic selection	3
5&6	Case study 1: Data analysis for Sustainable Public Environmental Management	6
7	Field studies – project data collection	3
8&9	Case study 2: Data analysis for Efficient Public Transportation Management	6
10-12	Storytelling sessions (consultation & rehearsal for the experiential learning projects)	9
13	Engaging with Policy Makers and Community Leaders: Presentations	3

The above schedule is tentative and may be revised according to the changing needs of the students taking the course and the availability of flipped classroom materials developed by the course team. Group meetings and AI consultation sessions may be organized in lieu of lectures to offer more personalized learning experience.

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