

UNITED NATIONS

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

STATISTICAL INSTITUTE FOR ASIA AND THE PACIFIC (SIAP)

e-Learning Course

Principles of Data Visualization for Official Statistics and SDG Indicators

11 November – 27 December 2024

I. About the Course

This course introduces data visualization as a tool to produce high-quality graphics for monitoring, reporting and publishing official statistics and Sustainable Development Goals (SDGs) indicators.

This course offers participants the opportunity to explore and interpret key techniques in data visualization, both for data exploration and effective data presentation. Learners will analyze, evaluate, and apply essential principles of data visualization through dedicated case studies, addressing the challenges of visualizing complex datasets. The course emphasizes strategies for visualizing multi-dimensional data and introduces practical methods for representing statistical indicators on maps and within dashboards.

While the course introduces popular software, it is not focused on any particular tool. Participants are encouraged to use the software of their choice, tailoring the techniques to their specific needs.

Designed as an interactive e-learning experience, the course comprises six modules, each following a structured progression with mandatory pedagogical activities. These include videos, interactive content, chats, live lectures, webinars, document readings, exercises, homework assignments, polls, and quizzes, all aimed at engaging participants in active learning and application of the material.

Live lectures and webinars are mandatory, and learners are expected to participate actively in discussions through chat boxes and dedicated forums embedded in each module.

The course is hosted on the SIAP e-learning platform, which includes a general forum for questions and interaction with SIAP lecturers and e-learning platform administrators.

II. Target Audience

This course is designed for professionals working in the field of statistics, with responsibilities that include data collection, exploration, analysis, or dissemination of SDG indicators and related statistics. It is also suitable for individuals involved in designing data-driven dashboards and platforms, such as those working in IT or communication sectors.

Policy and decision makers are encouraged to participate if they seek to understand the methodological aspects behind data-based visualizations and aim to interpret them accurately for evidence-based decision-making.

Participants should have prior experience in creating data-based graphics using any type of software.

III. Learning Objectives

At the end of the course, participants should be able to:

- Identify data visualization objectives and limits
- Comprehend data visualization as a visual language
- Classify the different types of graphics that can be used to represent SDG indicators
- Apply data visualization rules to explore SDG statistics or to produce SDG-related graphics
- Compare statistical summaries and tables with their data visualization counterparts
- Elaborate strategies for visualizing multidimensional statistics used to produce SDG indicators
- Construct maps and alternative graphics for SDG indicators comparisons.
- Apply dynamic data visualization principles for producing dashboards

IV. Course Design and Content

The course is divided into six modules and will run for six weeks, with a break week after Module 4 to provide time for the mandatory peer-reviewed exercise. The elements (slides and references) used for each activity will be available for download in pdf format. In the last module, we also propose optional activities based on popular data visualization software as well as a selection of free online tools.

The workload of this course is of 1-2 h/week + 1 hour for weekly webinars. It is thus important for participants to organize themselves and allocate a sufficient amount of learning time during the course.

Module	Coverage
1 - “What is Data Visualization?”	<ul style="list-style-type: none"> - Data visualization objectives and limits - Features and goals of popular graphics - Types of graphics to represent SDG indicators - Design of a graphic based on a data set
2 - “Data Visualization rules to apply to SDG indicators”	<ul style="list-style-type: none"> - Badly designed data visualization - Data visualization rules - Misleading graphics - Criteria for an effective visualization
3 - “Choosing the right data visualization for the right SDG indicator“	<ul style="list-style-type: none"> - Choice of a data visualization - Visual perception - Statistical tables with their data visualizations counterparts - Processes leading to an efficient data visualization
4 - “Comparing many or complex indicators”	<ul style="list-style-type: none"> - Visualization in many dimensions - Applied data visualization rules - New types of graphics - Strategies for visualizing in multi-dimension
5 - “Maps”	<ul style="list-style-type: none"> - Importance of maps for SDG indicators comparisons - Limitations of statistical maps - Alternatives to maps for representing SDG indicators
6 - “Interactive and dynamic data visualization”	<ul style="list-style-type: none"> - Principles of dynamic data visualization - Tools and platforms for creating interactive data visualizations - Features of dynamic visualization

V. Evaluation

The course evaluation is based on the participant's ability to apply the methods and concepts covered throughout the course, as well as their capacity to recall and apply the key outcomes from each module. A mandatory individual data-based project will be assigned as a peer-review activity in Module 4. Active participation in chats and Q&A sessions will earn bonus points.

To successfully complete the course, participants must:

- **Achieve** a minimum final score of 70/100
- **Attend** weekly webinars and complete all required activities on time
- **Submit** the individual data-based project and **evaluate** peers by the deadline,

Participants must also complete the feedback evaluation to receive a certificate.