UNITED NATIONS

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

STATISTICAL INSTITUTE FOR ASIA AND THE PACIFIC (SIAP)

e-Learning Course

Advanced Data Visualization for Official Statistics and SDG Indicators

10 August – 11 September, 2026

I. About the Course

This course is an advanced course in data visualization, conceived as an extension of SIAP's facilitated course "*Data Visualization for Official Statistics and SDG Indicators*," last conducted in 2024, or, alternatively, of the self-paced course "*Principles of Data Visualization for Official Statistics and SDG Indicators*," available on SIAP's e-learning platform.

This advanced course focuses on methods for producing high-quality graphics for monitoring and publishing official statistics and SDG indicators. It highlights advanced topics in data visualization such as visualizing and representing high-dimensional datasets, visualizing uncertainty, and visualizing networks, among others. It also addresses important issues such as gender and ethical considerations in graphical communication. Additionally, the course proposes resources and practical insights on storytelling and the construction of visual narratives for diverse audiences, promoting inclusive data visualization.

This course provides an opportunity for participants to improve their data visualization techniques, both for data exploration and for the (re)presentation of complex, unstructured, or high-dimensional datasets. It includes case studies and practical strategies, as well as hands-on methods for representing statistical indicators on maps or within dashboards.

This is an interactive training programme composed of five modules (4+1), each consisting of a series of pedagogical activities organized in a logical progression. Activities include videos – some interactive - forums, interactive graphical interfaces, live lectures, webinars, exercises, polls and quizzes. A preliminary module, Module M0, serves as a reminder of key data visualization notions, terminology and basic concepts. These notions will be used throughout the course.[1]

[1] The module M0 is not a substitute to the required completion of SIAP's data visualization courses.

The course is hosted on the SIAP's Learning Management System (LMS) which contains a forum for general questions and interactions with the SIAP's lecturers and e-learning platform administrators. Mandatory weekly webinars, in the form of presentations or Q&A sessions will be proposed using the Microsoft Teams platform. The participants are expected to interact during live sessions and through forums embedded in each module.

Communication, pedagogical resources – including tests-, forums and webinars are in plain English.

II. Target Audience

The course is designed for personnel working in the field of statistics, whose main responsibilities include data collection, exploration, analysis and dissemination of SDG indicators and related statistics. The course is also open to personnel responsible for designing data-based dashboards and platforms, including professionals working in information technology (IT) or communications.

As this course is offered at an advanced level, **participants are required to have successfully completed** one of the following courses prior to registration:

- "*Data Visualization for Official Statistics and SDG Indicators*", facilitated courses conducted in 2024, 2022 and 2021.

or, alternatively,

- "*Principles of Data Visualization for Official Statistics and SDG Indicators*" a self-paced course available on SIAP's LMS.

Participants are expected to have some experience in producing 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*
- *Visually apprehend data in multiple dimensions*
- *Apply data visualization design rules and principles*
- *Elaborate strategies for visualizing statistical indicators on maps*
- *Apprehend network representation and identify the limits of their construction*
- *Discuss visual narrative concepts*
- *Apprehend data storytelling*
- *Identify and focus on inclusive data visualization*
- *Analyse the importance of visualizing graphics when uncertainty exists*

IV. Course Design and Content

The course is divided in 4 modules and will last for 5 weeks and will require no less than 3h of work each. The elements (slides and references) used for each activity will be available for download in pdf format. We also propose optional activities based on popular data visualization software, links to free online tools and to bespoke interactive pedagogical exercises.

Module	Coverage
0 – What is Data Visualization	- 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
1 - Maps and Networks	- Statistical indicators on maps - Construction of networks - Visualizing relationships with networks - Issues in network visualization
2 – Advanced Data Visualization Methods	- Visualizing in high dimensions - Visualizing uncertainty - Visualizing uncertainty in High Dimensions - Visualizing surfaces
3 - Interactivity, Storytelling and Visual Narration	- Interactivity in data visualization - Design principles - Gestalt principles - Visual narratives - Storytelling -
4- Inclusive and Ethical Visualization	- Unused data visualizations - Inclusive visualization - Ethical visualization

V. Evaluation

The evaluation will be based on the learner's ability to apply the methods and training materials presented during the course, as well as on their capacity to recall the main outcomes of each module. The final grade will be based on two mandatory assessment exercises:

1) Four **Multiple Choice Questions** (MCQ)–like tests to complete at the end of each module.

2) A mandatory **individual data-based project**, which must be conducted strictly during the period from **20 August to 4 September** (no submissions outside this period will be accepted).

To succeed in the course, participants must have a minimum **total score**[2] of **70** out of 100 **and** comply with the following conditions:

- Complete **all** mandatory activities in each module.
- Attend **all** webinars or watch the recordings.
- Complete **all** tests at the end of each module (4 tests in total).
- Successfully **complete** the individual data-based project activity within the strictly defined timeframe indicated above.

Participation to the various chats and Q&A will provide bonus points.

Participants **must complete** the end-of-course evaluation to receive a certificate.

[2] The final score is the total of each grade for the four test plus the grade to each phase of the individual data-based project.