

Syllabus of the UN Data Analytics Professional Certificate (UNDAPC)

Spring Semester 2027

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Learning outcomes

The UN DAPC offers a unique blended curriculum on descriptive and predictive analytics in the UN context. Over six months, participants are guided through a specialized learning experience designed by UN data experts.

The UN Secretary-General's Data Strategy highlights the need to start with "data action that adds immediate value for our organization and the people we serve".

In the vision of UN 2.0, data stands as a cornerstone for transforming global governance and fostering sustainable development. It enables evidence-based decision-making, ensuring that policies and interventions are grounded in accurate and up-to-date information. Data-driven insights empower the UN to track progress, identify gaps, and optimize resource allocation, ultimately improving the effectiveness and efficiency of its programmes.

This course has been designed to prepare UN staff to unlock their data potential through a comprehensive and interactive overview of core data science concepts from descriptive to predictive analytics. Participants will be better equipped to formulate problem statements for data-informed solutions, apply data visualization and storytelling design principles to deliver powerful messages, and build basic predictive models with appropriate methods and skills. They will have the opportunity to hone their skills in effectively communicating data analysis findings and dealing with the ethical dilemmas and risks associated with working with real-world data cases. At the end of the Programme, participants will be able to:

- Explain the different types of analytics and their applications in the UN context.

- Implement a scoped data analysis tailored to their information needs.
- Use data visualization and data storytelling techniques to communicate key messages.
- Identify suitable predictive analytics applications to meet the business needs at their workplaces.
- Describe the key features of predictive models, understand risks and how to ensure an ethical use.

The course is composed of self-paced lessons and instructor-led webinars. Its key features include practical case studies and on-the-job practice opportunities. These features ensure that participants not only gain solid knowledge and skills but also have opportunities to apply them in practice.

Target audience

The course targets UN personnel (professional and general service staff) at headquarters and field locations, interested in using data more effectively at work. It will be of great benefit to those who need to present analyses or to those charged with research, analytical and reporting responsibilities. More generally, the course will benefit all UN staff interested in expanding their knowledge and ability to access, use, interpret and communicate data.

Thematic self-paced modules

A comprehensive curriculum of thematic self-paced modules delivered online through UNSSC's e-learning platform. More information on the 10 thematic modules is displayed below:

Module 1 Data fundamentals

This module lays the foundation of data science. It describes the main elements and characteristics of data and the importance of data for the United Nations. Meanwhile, it introduces descriptive statistical measures that can help us understand the quality of our data.

Module 2 Data science project

This module offers an overview of a data science project. We explore the management components of a data science project, and identify different types of approaches to data analysis. We then analyze different methods for data sampling and data collection to get high-quality data for analysis.

Module 3 Data exploration and analysis

This module guides us to the core steps of a data science project: data preparation and data analysis. We discuss the processes of data cleaning and the measures for data protection. We also cover the concepts and skills of data analysis and statistical models with Excel examples.

Module 4 Data for decision making

This module explains the use of data analysis results in the decision-making process. We establish the processes of turning data into wisdom, and at the same time, understand how biases and noisy environments hinder effective data-driven decision-making. From here, we explore the efforts conducted to move towards data-driven organizations.

Module 5 Data visualization Part 1

This module reveals the basics of data visualization. Starting from the concepts and theories, we learn to communicate with data and explore the scenarios for different visualization types. By analyzing some particular examples, we identify practices that misuse data and manipulate the information, as well as skills to make accessible data visualizations.

Module 6 Data visualization Part 2

This module explores data visualization at a more advanced level. We refine our graphs from a design standpoint to ensure the message is clear and well-emphasized. Then, we learn how to interpret more advanced graph types, as well as when to use them.

Module 7 Data storytelling

This module incorporates data into storytelling to deliver an engaging and credible message. We explore how to leverage data storytelling concepts and approaches to enable decision-making. Following the traditional narrative arc, we consider the context, the message, and the interactivity to build a powerful data story.

Module 8 Fundamentals of predictive analytics

This module introduces the key concepts and features of predictive analytics. From its



mathematical logic to various methods, we learn the fundamentals of predictive analytics and the procedures for developing a predictive model. With real-life examples, we examine different kinds of predictive models for suitable scenarios in social sciences.

Module 9 The science of predictive analytics

This module describes common approaches to predictive analytics. First, we learn the components and functions of time series and learn how to develop one. Second, we analyze machine learning methods and their applications. Third, we explore how to use ensemble learning to build a high-quality predictive model.

Module 10 Applying predictive analytics

This module demonstrates the process of machine learning model deployment and the ethical use of predictive analytics. We learn the main steps and identify key arrangements to deploy predictive models from production to operation. Also, we discuss key considerations of ethics and risks in applying predictive models, and summarize good practice.

All thematic self-paced modules include a resource section with relevant materials. Each self-paced module takes about 4 hours to complete.

Live sessions

Practical and interactive webinar sessions with practitioners and data experts. Information about the topics, duration and dates is displayed below.

Live session	Time	Date
Orientation webinar	60 min	16 March
Data collection and cleaning	120 min	23 March
Data exploration and analysis	120 min	30 March
Cognitive bias and logical fallacies	120 min	6 April
Data Visualization 1	120 min	13 April
Data Visualization 2	120 min	20 April
Data Storytelling	120 min	27 April
Orientation and tools to predictive modeling	120 min	4 May
Predictive analysis of malaria prevalence	120 min	11 May
Conflict prevention through classification analysis	120 min	18 May
Analysis of time series forecasting	120 min	25 May

On-the-job guided practice and Case study

Mentoring sessions will guide the application of the knowledge and newly acquired skills. Throughout the practice, learners will join three group meetings with their mentors.

On-the-job guided project

The On-the-Job guided Project (OJP) is expected to summarize the skills and knowledge gained through the training directly applicable to the learners' work. The learner should choose one of the following areas of specialization:

- 1) Data preparation, exploration and analysis
- 2) Data visualization and storytelling

By 21 March learners should choose their specialization and inform the UNSSC Team, so they can be assigned to a mentor.

The first meeting will take place by 9 April to discuss potential approaches for the OJP and guide each learner on the proposal.

The OJP proposal (1-2 pages) will include:

- 1) A title and brief description of the proposed project, in one of the two areas of specialization
- 2) A brief statement of expected results
- 3) Specification of methods and tools to use

By 23 April learners should submit the OJP proposal to the mentor. Then mentors will provide written feedback by 30 April.

The second meeting will be scheduled during the first week of May to give guidance and support during the research.

By 28 May, learners should submit a brief OJP report documenting the project experience and the results obtained.

The OJP report (3-4 pages) will include:

- 1) Summary of the work conducted
- 2) Analysis or visualizations used
- 3) A brief statement of conclusions

By 11 June the mentor should provide brief written feedback and have a meeting with the mentees. During the meeting, mentors will clarify feedback and share best practices.

Case Study

Learners that do not work with data, or prefer to work on a given Case Study (CS), will be asked to choose one of the following areas of specialization:

- 1) Data preparation, exploration and analysis
- 2) Data visualization and storytelling
- 3) Predictive modeling

By 21 March learners should inform the UNSSC Team about the area of interest, in order to be assigned to a mentor.

Throughout the practice, learners will join three group meetings with their mentors. The first meeting will take place by 9 April to discuss potential approaches for the case study.

The CS proposal (1-2 pages) will include:

- 1) A title and brief description of the proposed project, in one of the three areas of specialization
- 2) A brief statement of expected results
- 3) Specification of methods and tools to use

By 23 April, learners should submit the proposal to the mentor. Then mentors will provide written feedback by 30 April.

The second meeting will be scheduled during the first week of May to give guidance and support during the research.

By 28 May, learners should submit a brief CS report documenting the experience and the results obtained.

The CS report (3-4 pages) will include:

- 1) Summary of the work conducted
- 2) Analysis, visualizations or models used
- 3) A brief summary of conclusions

By 11 June the mentor should provide brief written feedback and have a meeting with the group. During the meeting, mentors will clarify feedback and share best practices.

Tools

The self-paced modules are mainly tool agnostic, as they focus on principles and concepts that can be used by any tool. During the webinars, the learners will discuss and practice with different tools, including:

- 1) Data fundamentals: Open Refine, JASP
- 2) Data visualization: Flourish, Power BI, Canva, Sway
- 3) Predictive modeling: BigML

During the OJP or CS, participants will be able to practice with the tools discussed during the webinars or others, in coordination with the mentors. However, the main focus is given to the tools that are free to use. Excel, Open Refine and JASP will be the main tools for data cleaning and analysis. For data visualization, participants will have access to the free version of Power BI, which offers robust functionality for our learning objectives. Additionally, the free version of Flourish is more than sufficient for practicing data visualization techniques covered in the course.

Completion requirements

The UN DAPC Certificate will be issued upon successful completion of mandatory activities, final quiz and OJP/CS positive assessment. To receive the Certificate, the learners should have:

- Completed all lessons in the self-paced modules
- Responded to the questions in the discussion forums
- Joined all live webinars
- Completed a final test
- Submitted and passed the OJP/CS report
- Answered a final survey about the course

Digital certification

A digital certificate will be issued as indicator of accomplishment of the acquired learning. It will be possible to display and verify the certificate online following open badge standards.

Faculty

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- [Katerina Tsetsura](#)
- [Tarek Azzam](#)
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