
BIP program: Data Analytics Fundamentals

3rd to 7th March 2025; 17th February 2025 (online)

Venue: Prague University of Economics and Business

Organized by:

Prague University of Economics and Business

University of Maribor

Université Grenoble Alpes

Duration: 5 days / 3rd to 7th March 2025; 17th February 2025 (online) /

Overview: This interactive course is designed to equip participants with practical skills in data analysis and visualization using Excel and Power BI, framed around an engaging gamified experience. The course provides hands-on opportunities to explore the principles of data-driven decision-making, empowering participants to extract insights from complex datasets and apply them effectively in real-world scenarios.

Course Objectives:

1. Introduce the fundamentals of data analysis and visualization through practical tools like MS Excel and Power BI.
2. Develop participants' analytical thinking by solving problems in a simulated environment (AdGame).
3. Encourage the use of dashboards to support quick and informed decision-making.
4. Foster collaboration and strategic thinking by reflecting on game outcomes and sharing lessons learned.

Course Structure:

The course alternates between theoretical explanations, guided demonstrations, hands-on exercises, and gamified learning sessions. Participants will gradually progress from intuitive decision-making to mastering analytical tools, culminating in creating advanced dashboards to tackle real-world challenges.

Target Audience:

This course is ideal for students, and anyone interested in gaining practical experience in data analysis and visualization. No prior experience in Excel or Power BI is required, although basic computer skills are expected.

Learning Outcomes:

By the end of this course, participants will be able to:

- Use Excel for advanced data analysis, including pivot tables, formulas, and Power Query.
- Design and build dynamic dashboards in Power BI using data modeling and visualization techniques.
- Apply analytical insights to solve complex problems and make strategic decisions.
- Collaborate effectively in teams to develop data-driven strategies.

Key Features:

- Hands-on practice with real-world data scenarios.
- Gamified learning through the interactive AdGame simulation.
- Individual and team exercises for skill-building and collaboration.
- Guidance from experienced instructors and peer feedback.

Expected Outcomes:

Participants will leave the course with actionable knowledge of Excel and Power BI, as well as an understanding of how to apply these tools in professional or academic settings to support datadriven decision-making.

Course schedule

17th February, 2025 / online

- Introduction to the course
 - Expectations settings
 - Assigning Pre-Course Materials
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3rd March 2025/ Monday (9:15–16:00)

1. Introduction (9:15–10:00, 45 minutes)

- **Goal:** What will the course cover?
- **Discussion:** How do participants currently work with data?
- **Demonstration:** What is AdGame, and how is it played (Reminder)?

2. First Game (10:00–11:30, 90 minutes)

- **Goal:** Familiarize participants with the game principles, user interface, and data files.

- **Game characteristics:** Understanding the city is intuitive without data analysis, but analyzing opponents' behavior is impossible without data.
- **Problem:** How to extract information from larger datasets? How to connect the data?
- **Discussion:** A short debriefing after the game.

Break (11:30–12:00, 30 minutes)

3. Data Analysis in Excel (12:00–16:00, 4 hours)

- **Goal:** Introduce basic principles of data analysis in MS Excel.
- **Content:** Pivot tables, data filtering and slicers, lookup and reference formulas, Power Query.
- **Demonstration:** Building a dashboard in MS Excel using game data.
- **Individual Work:** Create a dashboard for the game.

Breaks as needed.

4th March 2025/ Tuesday (9:15–16:00)

5. Second Game (9:15–11:15, 2 hours)

- **Goal:** Test dashboards created in Excel during the game.
- **Game characteristics:** The city is not intuitive, making it harder to earn money. Winning the game requires data analysis.
- **Problem:** How to create tools for quick decision-making? How to ask the right questions?
- **Discussion:** A short debriefing after the game.

Break (11:15–12:15, 1 hour)

6. The Principle of Multidimensionality (12:15–13:45, 1 hour 30 minutes)

- **Goal:** Transform analytical questions into a multidimensional perspective on data.
- **Discussion:** What analytical questions do you ask during the game?
- **Lecture:** Multidimensionality, analytical applications, and analytical databases.
- **Exercise:** Identifying facts and dimensions using examples.

Break (13:45–14:00, 15 minutes)

7. Data Analysis in Power BI (14:00–16:00, 2 hours)

- **Goal:** Introduce basic principles of data analysis in MS Power BI.
 - **Content:** Data import and transformation, relationships, data modeling.
 - **Demonstration:** Building a data model in MS Power BI using game data.
 - **Individual Work:** Create a data model.
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4th March 2025/ Wednesday

- Half-day tour to Prague Castle and its surroundings.
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5th March 2025/ Thursday (9:15–16:00)

7. Dashboard Creation (9:15–12:15, 3 hours)

- **Goal:** Introduce basic principles of dashboard creation in MS Power BI.
- **Content:** Dashboard creation in MS Power BI.
- **Demonstration:** Building a dashboard in MS Power BI using game data.
- **Individual Work:** Prepare a dashboard for the game.

Break (12:15–13:15, 1 hour)

8. Data Visualization and Dashboard Refinement (13:15–16:00, 2 hours 45 minutes)

- **Goal:** Motivate participants to create user-friendly dashboards.
- **Lecture:** Types of visualizations and their purposes, principles of good dashboard design.
- **Exercise:** Identifying problems in visualizations.
- **Individual Work:** Fine-tune dashboards in MS Power BI.

6th March 2025/ Friday (9:15–13:00)

9. Final Game (9:15–11:15, 2 hours)

- **Goal:** Test dashboards in Power BI and the knowledge gained throughout the course.
- **Game characteristics:** The city includes multiple population segments to showcase broader data analysis applications, even if a team struggles early in the game.

10. Sharing Experiences (11:15–13:00, 1 hour 45 minutes)

- **Presentations:** Teams present their strategies and tools developed for decision-making.
 - **Group Reflection:** Summarize "lessons learned" to help participants apply the knowledge in their daily work.
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