



Data Literacy Certification Syllabus

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Introduction

Data literacy - the foundation of data-driven decision making

Numbers are central to our understanding of performance. They enable us to make informed decisions. The way we determine success or failure is almost always based on numbers. We derive great value from the stories that numbers tell, yet we rarely consider the significance of how we use them.

Data literacy is an umbrella term to cover all the skills required to understand, work with and share data effectively.

Understanding data requires a set of skills that are easy to learn, but in general far from intuitive. None of us are born with the capacity to understand data: it is a human abstract construct, so we all need to learn how to work with it.

We can learn a lot from our data in order to improve our processes and our lives. But before we get to the value of data, we need to have a better understanding of what data is and what it isn't.

The Effective Data Foundation (EDF)

The Effective Data Foundation (EDF) is a private collaboration that aims to promote the effective use of data.

Intended audience

The Effective Data Foundation – Data Literacy Certification is intended for anyone who uses data in their professional life to improve processes and performance.

Therefore, it is ideal for people for whom the concept of data is relatively new and who wish to become competent in using data. It is also for people already working in this field who wish to strengthen their knowledge and improve their skills.

The EDF – Data Literacy Certificate

This EDF Certification recognizes the awareness and understanding of the components of data literacy and how to foster its adoption and application for the benefit of everybody who needs to make decisions based on data.

The EDF Certification is achieved through an exam which demonstrates that a participant:

- Understands what data is and isn't;
- Is aware of the questions that need answered whenever you receive some data;
- Knows how to summarize data in the right way;
- Is aware of the main processes involved from data origins to usage;
- Understands what data quality is;
- Knows how to use data to measure performance;
- Is aware of the impact of our expectations on data analysis;
- Understands the main human biases involved in data analysis;
- Is aware of the principal types of data analysis;
- Understands the impact of context on analysis;
- Knows how to apply storytelling principles to data arguments

The syllabus outlines the knowledge that the candidate will be tested on during the exam. It also provides suggestions for preparation (background reading) and highlights the benefits of taking this exam.

Certifying Organisation

Van Haren certN

The EDF – Data Literacy Exam

You first need to have successfully completed the Effective Data Foundation Data Literacy Exam to obtain the EDF Data Literacy Certificate. The exam procedure is explained in this section.

Practical information

You must pass a multiple-choice exam in which your knowledge of effective data literacy will be tested to obtain an EDF Data Literacy Certificate. All exam candidates will access the online exam environment and need to answer 60 multiple-choice questions within 60 minutes. To pass, you must answer 65% of the questions correctly (or at least 39 of the 60 questions). Each question has precisely four possible answers, where one or multiple answers are correct. You will receive the result immediately after the exam. (Digital) Access to your certificate will be given once you have passed.

Number of questions:	60
Time (minutes) for the exam:	60 minutes
% Minimal passing grade:	65%
Open or closed book:	Closed
Language:	English
Exam format:	Online
Type of questions	Multiple choice
Are there also negative questions included in the exam (<i>for example: "which of the following is NOT a good data visualization?"</i>)	Yes. Candidates are advised to read the questions carefully

Levels

The EDF Data Literacy Certification tests candidates at levels 1 and 2 according to the Bloom Revised Taxonomy.

Bloom Level 1: Recall & Retention

We test candidates on their ability to memorize factual information, to retain information by collecting, remembering, and recognizing specific knowledge. Knowledge includes facts, terms, answers, or terminology.

Bloom Level 2: Understanding

We test candidates on their ability to construct meaning from oral, written, or graphical pieces of information. This is done by interpreting, summarizing, distracting, comparing, classifying, predicting, or explaining the message.

Your investment

The EDF Exam requires preparation, which means this is an investment in time for personal study and attention covering the subject of effective data literacy. You are completely free to do this in several ways and can consider self-study, reading the reference materials listed in the syllabus, or following a training programme which is designed in line with this syllabus.

Refer to the list of topics in this syllabus. Here you can see which subjects you will be tested on during the exam. The time it takes to prepare for the exam depends on your prior knowledge, experience, and training. Commercially offered training programmes that prepare for the Data Literacy Exam will typically last two to three days. You should allow sufficient time for self-study to address the subjects listed in this syllabus.

Preparation and recommended literature

During your exam preparation, you should familiarize yourself with the concepts of effective data literacy, for example by following a course and reading specified literature. There are ongoing publications about effective data literacy. So, it should be straightforward to find books, articles, blogs, vlogs, or videos about the different aspects.

We include a recommended reading list in this syllabus.

We also advise you to contact people who work with effective data literacy and observe what they do and the techniques they use - and also talk to them.

We have included the following in the syllabus to help you get started:

- Specifications of the examination material - divided into modules.
- The weighting of each individual module towards the overall exam.
- A list of key terms and concepts detailing what must be covered.
- Literature suggestions are available for newcomers in field. Note many of the data literacy concepts have been established for some time and are widely accepted with online and offline reference materials available.
- A practice exam is available online after purchasing an exam. The practice exam contains questions at the same level as the questions in the actual exam. The number of questions may differ from the actual exam. The actual exam includes 60 questions, and you will have 60 minutes to answer them.

Preparation training

We endorse the added value of thoroughly preparing for the Effective Data Literacy Exam and strongly recommend preparatory classroom training, webinars, and online eLearning journeys.

This can help you to understand the essence of effective data literacy and can give you practical examples. That said, it is not mandatory to follow specialized training.

The Effective Data Foundation does not accredit trainers, training institutions or training programmes. The composition and duration, organization, pricing, and execution of the training is the responsibility of the trainer.

Topics of the EDF Data Literacy Exam

In this section, you can read about how the Data Literacy Exam is structured and which subjects you will be tested on as a candidate. It is also a tool that you can use to prepare yourself for the test.

In this syllabus we indicate the topics that are covered in the exam and additional topics which are relevant for further study but are not covered in the exam. During the exam you will be tested on your general knowledge about:

Topic 1: Read data

- What is data?
- Summarize data
- Consume data
- Check your data

Topic 2: Work with data

- Creating data
- Data quality
- Acquiring & cleaning
- Managing data

Topic 3: Analyze data

- Expectations
- Thinking shortcuts
- Types of analysis
- Analytical skills

Topic 4: Argue with data

- Explore to explain
- Selecting the right visualizations
- Storytelling with data

Exam structure

The exam specifications describe the topics in the subject matter of the Data Literacy Exam, and their relative importance. Questions can be asked during the exam about the following subjects.

Topic	% Questions in the exam
1 Read data	25%
2 Work with data	25%
3 Analyze data	25%
4 Argue with data	25%

The following sections specify what knowledge is expected in each of these topics.

Exam topics and recommended literature

Topic 1: Read data

Goals:

- Describe the key properties of data (recall)
- Describe how to summarize data (recall)
- Recognize typical pitfalls when consuming data (comprehend)
- Describe the main questions to check any data expression (recall)

Recommended literature:

- Be Data Literate, Jordan Morrow
- Learning to See Data, Ben Jones
- Data Literacy Fundamentals, Ben Jones
- Thinking Fast and Slow, Daniel Kahneman
- Data Literacy, Peter Aiken & Todd Harbour

Topic 2: Work with data

Goals:

- Describe how data is created (recall)
- Describe the differences between machine and human generated data (recall)
- Describe the differences between mandatory and optional data (recall)
- Recognize the data quality dimensions (comprehend)
- Recognize the best data structure for analysis (comprehend)
- Describe the three basic data cleaning phases (recall)
- Describe how to define performance measures (recall)

Recommended literature:

- Read, Write, Think Data, Ben Jones
- Data Literacy Fundamentals, Ben Jones
- Becoming a Data Head, Alex J. Gutman & Jordan Goldmeier
- Avoiding Data Pitfalls, Ben Jones
- Innumeracy, John Allen Paulos
- Statistical Data Cleaning, Mark van der Loo & Edwin de Jonge
- Practical Performance Measurement, Stacey Barr
- Prove it, Stacey Barr

Topic 3: Analyze data

Goals:

- Recognize the impact of our expectations on our analysis results (comprehend)
- Describe the principal thinking shortcuts (recall)
- Describe the main types of analysis (recall)
- Describe the main analytical skills (recall)

Recommended literature:

- Read, Write, Think Data, Ben Jones
- Becoming a Data Head, Alex J. Gutman & Jordan Goldmeier
- The Signal and the Noise, Nate Silver
- Naked Statistics, Charles Wheelan
- Weapons of Math Destruction, Cathy O'Neal
- Statistical Data Cleaning, Mark van der Loo & Edwin de Jonge

Topic 4: Argue with data

Goals:

- Describe the key properties of the Explore phase (recall)
- Describe the key properties of the Explain phase (recall)
- Recognize the activities belonging to a specific phase (comprehend)
- Describe the typical data forgeries (recall)
- Describe the main steps in the data storytelling arc (recall)

Recommended literature:

- More Judgement than Data, Michael Jones
- Effective Data Storytelling, Brent Dykes

Exam regulations

General rules

An Data Literacy Certification via the Effective Data Foundation is a prestigious title, and fraud is not tolerated. Your exam will be immediately rejected if fraud is found to have been committed during or after completion of the exam. As a result, you will not be reimbursed for your examination fees.

If you fail to pass the exam, you will not receive a certificate. This also means that you must purchase and take a new exam for your certification. Every candidate only gets one attempt per exam to succeed.

Sharing of exam questions is illegal

It is not allowed to share exam questions with others or make them public. This is a violation of the copyright and IP of the Effective Data Foundation and the Certifying Body. Doing so can lead to legal action by the Certifying Body with potentially harmful consequences.

Feedback and questions

We have done our best to help you prepare for the Data Literacy Exam by publishing this syllabus.

We would like to know what you think of this syllabus and the exam. If you have any suggestions for us, we would love to hear from you.

Have fun, take your time preparing for the exam, and good luck. Naturally, we also wish you lots of fun in putting what you've learned into practice!

On behalf of the team – Effective Data Foundation.

Amsterdam, May 2022