BDV

Data Science Analytics Badge

Academic Level

INFORMATION AND GUIDELINES FOR APPLICANTS

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1. INTRODUCTION

This document provides information regarding the process of applying for the Academic Level of the Data Science Analytics Badge. Additionally, this document presents the evaluation criteria that will be used to assess applications, so that applicants are aware of how applications will be evaluated.

The skills required for the Data Analytics Badge are listed in Table 1.

Data Science Analytics Badge v1-0 – Academic Level
Required skills
DSA.1. Identify existing requirements to choose and execute the most appropriate data discovery techniques to solve a problem depending on the nature of the data and the goals to be achieved.
DSA.2. Select the most appropriate techniques to understand and prepare data prior to modeling to deliver insights.
DSA.3. Assess, adapt, and combine data sources to improve analytics.
DSA.4. Use the most appropriate metrics to evaluate and validate results, proposing new metrics for new applications if required.
DSA.5. Design and evaluate analysis tools to discover new relations in order to improve decision-making.
DSA.6. Use visualization techniques to improve the presentation of the results of a data science project in any of its phases.

Table 1. BDV Data Science Analytics Badge Skills

2. INFORMATION REGARDING THE APPLICATION PROCESS

Only approved programs can issue the Academic Level of the BDV Data Science Analytics Badge. To obtain this approval, a program must apply to issue the badge by providing evidence to show how they can ensure that their students have acquired the corresponding skills.

To simplify the application process, the *BDV Data Science Analytics Badge Academic Level Template for Badge Issuing Applications* is provided to help collect specific details

about how each of the skills required by the badge are acquired by the program's students. This document also includes the presentation of some general information about the applicant's program. This template should be completed and sent via email along with the different files referenced by the application which contain the corresponding evidences to *bdv.badges@big-data-value.eu*.

2.1. How to Complete the Template for Issuing Applications

2.1.1. General Information

The first section of the template is to collect general information about the applicant program and the institution responsible for the program.

A. Contact Information
   Here you will provide contact information for the program applying for the badge. The contact person need not be the same person that signs the application form. Note: this contact person must agree to the use of their personal data as required by the GDPR.
B. Program Background
   This section includes general information about the program, its web page, accreditations, number of graduates, and a general description of how the program is taught.
C. Options
   This section describes possible specializations in the program. In the case of joint programs, clearly state this fact as well as any other details needed to understand the subsequent evidences.

2.1.2. Acquisition of Skills

This section contains a list of the evidences that demonstrate how the program can ensure that each of the skills is acquired by the students of the program. For each of the skills, a table with the corresponding information should be completed according to the following guidelines:

- Name of the course or activity: Indicate the name of the different courses or activities in the program in which students acquire the corresponding skill. Courses could be any class included in the program while activities could be seminars, workshops, or any other activity.
- Optional/Mandatory: Indicate whether the corresponding course or activity is mandatory or optional for the students of the program. In the case of optional courses/activities, please include in the comments section the possible itineraries that could be followed to earn the badge.
- The average number of hours that students spend in the course/activity acquiring the skill: This column contains information about the estimated number of hours that instructors expect that students need to acquire the

corresponding skill in each of the courses/activities. This number includes the average number of hours dedicated to acquiring the skill as well as the time required to produce the different evidences associated with each course/activity.

- Evidence used to evaluate the acquisition of the skill: Any evaluated activity which is included in a degree program can be considered to be an evidence. Typical examples include: exam questions, laboratory exercises, sections of oral exams, and parts of final projects. Typical evidence files in these cases would include: a copy of the exam's questions, the instructions and description of the laboratory's submitted work, the syllabus of an oral exam or the description of the requirements for the final projects. If an evidence file includes multiple evidences, please clearly specify which evidence corresponds with each skill. For example, if an evidence file contains an exam please state which question or questions provide the corresponding evidence.
- Name of the evidence file: Provide the name of the file containing each of the evidences. We suggest that you name the files so that they refer to the skill, course and evidence provided. For example, *DS1 – Big Data Course – Exam 1 – Questions 2and3.pdf*. Each evidence file should be included with the submitted application in pdf format. As mentioned previously, this file can be a copy of the exam's questions, description of a project, syllabus, etc. Please mark clearly the particular part of the content that provides the evidence. For example, if in the previous column it is mentioned that the evidence is provided in questions 2 and 3 of Exam 1, the file containing Exam 1 should include questions 2 and 3 highlighted. Please **do not submit** examples of student work or any other information considered to be confidential by your institution.
- The minimum level required to demonstrate the acquisition of the skill: the minimum grade that the students must earn, in the corresponding part of the evidence file, in order to show that they have acquired the skill. Examples are: 7 points out of 10, 65 points out of 100, B from the range A-B-C-D.
- Minimum number of hours that the student dedicates to acquire the skill: this number represents the sum of the average number of hours that the student dedicates to each of the evidences for each particular skill. In case of optional coursers/activities, this number should be the minimum number of hours included in all of the possible itineraries. For example if there are two possible itineraries, Itinerary 1 with X hours and Itinerary 2 with Y hours you should include here the lesser of X and Y.
- Comments: This section is optional and can include any information that the applicant considers relevant for the reviewers. In case of optional courses/activities, this section should include a brief description of the different itineraries that the students can take stating clearly each of the minimum sets of evidences needed to demonstrate the acquisition of the skill. For example Itinerary 1: activity 1, activity 2, activity 3; Itinerary 2: activity 1, activity 3, activity 4.

3. EVALUATION GUIDELINES FOR THE DATA SCIENCE ANALYTICS BADGE

Each application will be independently reviewed by two experts. A final decision will be made if their recommendations coincide. If the two reviewers are not able to reach a consensus, a third reviewer will be asked to participate in the process. All reviewers participating in the process will sign a code of conduct which, amongst other things, requires the non-disclosure of all information contained in the applications as well as the exclusion of reviewers who could have a conflicts of interest.

3.1. Criteria for evaluation

Based upon the information presented, the acquisition of each of the skills of the Data Science Analytics Badge will **scored** as follows**:**

- 0 — Fail: The application fails to address the skill or the acquisition of the skill cannot be assessed due to missing or incomplete information. ('Obvious clerical errors' are not considered to result in incomplete information.)
- 1 — Poor: the skill is inadequately addressed or there are serious inherent weaknesses.
- 2 — Fair: the application broadly addresses the skill but there are significant weaknesses.
- 3 — Good: the application addresses the skill well but with a number of shortcomings.
- 4 — Very good: the application addresses the skill very well but with a small number of shortcomings.
- 5 — Excellent: the application successfully addresses all relevant aspects of the skill; any shortcomings are minor.

These scores will be assigned based upon the following **criteria**:

- Is the average total number of hours that a student dedicates to the skill sufficient?
- Are the activities chosen to evaluate the skill appropriate for determining whether a student has acquired the skill?
- Is the level of achievement expected of students in line with industry's expectations for new graduates?
- In each evaluation activity, is there a clear description of the tasks that will be performed for students to obtain the skill?

A reviewer will recommend that the applicant program be able to issue the badge if it is awarded at least 20 points and no skill is scored as less than 3.

3.2. The Final Decision

There are four possible **Final Decisions** for each application:

- Application Accepted = there is no doubt that the program provides the expected data science analytics skills. The program is granted permission to issue the badge for four years.
- Application Accepted with Recommendations = the program provides the data science analytics skills, but needs some improvement. The program is granted permission to issue the badge for one year, and needs to resubmit its application within a year.
- Application Rejected with the possibility of revision = there is not enough evidence provided in the application to show that the program adequately provides the required data Science analytics training, but this could possibly be due to missing or incomplete information. The program is given the opportunity to resubmit a revised version of the application.
- Application Rejected: there is not enough evidence to show that the program adequately provides the required data science analytics training.

4. THE REVISION OF APPLICATIONS

If the reviewers of an application believe that the application would greatly benefit from the addition of missing information, they can offer the applicant the possibility of resubmitting a revised version of the application. If this is the case, the applicant will be offered two weeks to resubmit the application.

5. APPEALS

If after the receipt of the final decision of an application, the applicant believes that an error was committed in the review process, the applicant can submit an appeal. Appeals need to be submitted in the two weeks immediately following the receipt of a final decision.