

Learning Analytics and Reporting

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Introduction

This resource describes the Amathuba tools that make use of student data to support teaching and learning on the platform. It describes three categories of tools:

1. Class Progress tool
2. Intelligent Agents tool and Release Conditions
3. Activity analytics (for Discussions, Quizzes, Content, Grades and Rubrics tools)

Firstly, we describe how to use the learning analytics in each of these tools, accessed from the top menu in Amathuba. Thereafter, we describe three use cases for learning analytics using these Amathuba tools.

Class Progress

The Class Progress tool tracks overall student **access**, **behaviour**, and **performance**. It is accessed under the course navbar by clicking **Course Info**, and then **Class Progress**. There are two main views of the Class Progress tool: dashboard view and individual student view.

To learn more about the Class Progress tool, please visit the [Class Progress](#) guide.

Intelligent Agents and Release Conditions

Intelligent agents and release conditions are two separate features in Amathuba that often work together. Intelligent agents can be accessed under the course navbar by clicking **Manage Course**, and then **Intelligent Agents**. Release conditions define what students can access based on a predefined condition. These release conditions can be used to target student communications or reports by including intelligent agents.

To learn more about these two features, please visit the [Intelligent Agents](#) guide and the [Release Conditions](#) guide.

Activity-Specific Analytics

More detailed analytics can be found in some of the tools. More specifically, Discussions, Quizzes, Content, Grades and Rubrics.

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Discussions tool analytics

Lecturers can see stats for a course (org unit), user (student or group) or forum/topic level within the discussions tool. Metrics include number of threads, number of replies, posts read, post ratings, pinned threads and unapproved posts.

Quizzes tool analytics

Lecturers can see:

1. The overview level, which displays each quiz along with the current average score
2. The quiz level, which offers further details:
 - **Per user:** this includes the grade distribution, class average including standard deviation and the quiz grade for each user.
 - **Question stats:** average grade per question, standard deviation, discrimination index and point biserial.
 - **Question details:** includes answer distribution per answer option with the information in the question stats view, i.e., average grade, standard deviation, discrimination index and point biserial per question.

Content tool analytics

Stats are available on two levels:

1. **Content level:** Under the content level, users can see total number of users, users who have visited content and average time spent on content. Then, for each content item, users can see the number of users that the content item is available to, the number of users who visited the content item and the average time spent on that item.
2. **User level:** At the user level (individual and groups), lecturers can see a list of all users, the content topics available to each user and the number of content topics visited for each user. When selecting individual users, lecturers can see number of topics available, number of topics visited as well as a breakdown of each content item, whether it is available to the student, number of visits, average time spent and last visited.

Grades tool analytics

From the Grades tool, the lecturer can access statistics for each graded item on two levels:

1. **Class statistics:** Number of grades submitted, minimum, maximum, average, mode, median, standard deviation, grade distribution and grade frequency per symbol or grading schema.
2. **User statistics:** This view shows the grade per user for the item that you have selected.

Both these categories are available by user or group.

Rubrics tool analytics

From the rubrics tool, the lecturer can access statistics for the items associated with rubrics, divided up into three categories: activities, competency activities and eportfolio. Statistics are then available or associated with each activity that uses a rubric and grouped into **overall**, **criteria** and **individual** statistics.

Overall statistics: measures the overall (average) rubric score – or level. This includes the number of assessments, average level, and mode level. It also includes the frequency of each of the overall levels across the assignment.

Criteria statistics: measures the frequency for each of the levels under each of the criteria.

Individual statistics: shows an overall view of everyone, including the level, score, assessor, and date for each person (or group in the course).

Three Use Cases for Learning Analytics

The Amathuba learning analytics tools can be used together or individually, with three typical use cases outlined below.

Use case one: An early warning system dashboard

Dashboards can be created in Amathuba to function as a simple early warning system:

- Set up the Class Progress dashboard to contain the indicators considered most crucial for your students' success. E.g., if weekly quizzes are a key indicator of poor engagement on the course, include the quiz performance summary.
- Regularly scan the dashboard to see if you notice any patterns among the key indicators. E.g. are students submitting key assignments like tutorials/scoring well in the weekly quizzes?
- Once you have more details, e.g., you may notice that students' submissions for weekly quizzes have dwindled over the last two weeks. Use the reporting function of Intelligent Agent to establish the extent of the issue e.g., how many students have been skipping the weekly quizzes and how many are skipping more than one quiz in a row.
- If appropriate, use the email function in Intelligent Agent to communicate with students who meet certain criteria and send them an appropriate message. E.g., encourage them to retake the quizzes they have missed and direct them to the appropriate content.

Use case two: Variable learning pathways

If your subsequent modules build on previous modules, you may want to ensure that students who have failed a class test are alerted before they progress, of opportunities to revise certain content areas.

- Build a revision module aimed at revising the basic concepts of the content covered in a test.
- Set a threshold for those you think should complete the revision module e.g., all students who fail/receive less than 60% for the test.
- Communicate with students using an announcement with release conditions if they will need to complete the revision module before progressing.

Use case three: Content review

Allow the data to surface opportunities for improving course content. As an example, if your course is discussion-based, you may notice that some discussions have more activity than others. There are several reasons for a drop in participation. Some of these may be unrelated to the content. For example, a test week that temporarily shifted students' attention. However, sometimes irregularities may be a clue to an opportunity for improving the course content or activities.

- Scan the dashboard for irregularities e.g., lower than normal participation rates for discussions.
- Do some further investigation to check whether there may be external factors that caused this lack of participation e.g., checking whether course logins decreased over the same period may help to rule out factors relating to the content.
- If external factors are eliminated, check the actual discussion to see whether the structure or content of the question may require some revision.
- Revise the content for the next run of the course or respond accordingly.

Accessing additional learning analytics data

Amathuba allows downloading the data in reports but does not provide direct access to additional data beyond that presented.