## Grades Setup: Categories and Items - Grade Aggregation

Grades can be organized into grade categories. A grade category has its own aggregated grade which is calculated from its grade items. Each grade item may belong to only one category. All grade items and categories belong to the course category. The aggregation dropdown menu lets you choose the aggregation strategy that will be used to calculate each student's overall grade.


It is better to create the categories to be used for a course first. However, this can be done after assignments have been created.

## Mean of grades

The sum of all grades divided by the total number of grades. An example,

```
A1 70/100, A2 20/80, A3 10/10, category max 100:
(0.7 + 0.25 + 1.0)/3 = 0.65 --> 65/100
```


## Weighted mean

Each grade item can be given a weight, which is then used in the arithmetic mean aggregation to influence the importance of each item in the overall mean. An example,

```
A1 70/100 weight 10, A2 20/80 weight 5, A3 10/10 weight 3, category max 100:
(0.7*10 + 0.25*5 + 1.0*3)/18 = 0.625 --> 62.5/100
```


## Simple weighted mean

The difference from weighted mean is that weight is calculated as Maximum grade - Minimum grade for each item. An example,

```
A1 70/100, A2 20/80, A3 10/10, category max 100:
(0.7*100 + 0.25*80 + 1.0*10)/190 = 0.526 --> 52.6/100
```


## Natural

This is the sum of all grade values, it does not convert the grades to percentages internally. The Maximum grade of associated category item is calculated automatically as a sum of maximums from all aggregated items. An example,

```
A1 70/100, A2 20/80, A3 10/10:
70+20+10=100/190
```

