2018 Curriculum and Teaching Quality and Risk Appraisal (CTQRA) Enhanced Course Risk Model – Detailed Explanation

1. Definitions

Term	Definition
Group	A group has a distinctive characteristic (e.g., large course size).
Group comparison risk score	The comparison risk score for each group under each risk indicator (except for Enrolments). Group comparison risk score for minimal-risk=0, neutral-risk=1 and at-risk=3.
Semester risk score	The aggregation of all group comparison risk scores in a semester.
Semester risk status	The semester risk status for a course is based on the semester risk score with specific criteria.
Trend risk status	The trend risk status for a course is based on the semester risk scores obtained in the specified period with specific criteria.

2. Background

CTQRA is a process to ensure that programs and courses are reviewed annually. The CTQRA process enables a focused evidence-based reflection on the overall quality of all teaching programs and courses. Internal and external standards and benchmarks as appropriate, such as the Go8 benchmarks and TEQSA's Risk Assessment Framework provide sources of evidence to inform the process.

Based on the feedback received during the 2017 CTQRA process, together with the ITaLI Evaluations team's advice (SECaT dataset owner), the Learning Analytics team decided to make two modifications in the 2018 CTQRA course risk calculations:

1. Remove the teaching mode as a factor for clustering courses, as it was determined to contribute minimal significance to the course risk calculations when using SECaT course evaluation data. Course size is the only variable to cluster courses for these calculations.
2. For the trend risk statuses, there will be two categories for increasing-risk:
    - **'Increasing-risk (watch)'** which represents a course that its 'Semester Risk Score' showed an increasing trend in all the offerings, and the 'Semester Risk Score' showed a ≥20% increase between the last two offerings (if the second-last offering had 'insufficient data', then the score in the previous offering is used), and the last 'Semester Risk Status' was not at-risk.
    - **'Increasing-risk (alert)'** which represents a course that its 'Semester Risk Score' showed an increasing trend in all the offerings, and its last 'Semester Risk Status' was at-risk.

The introduction of these two categories is to minimise the occurrence of flagging courses with a false-positive trend risk. Figure 1 summarises the major differences between the 2017 and 2018 course risk calculation models.

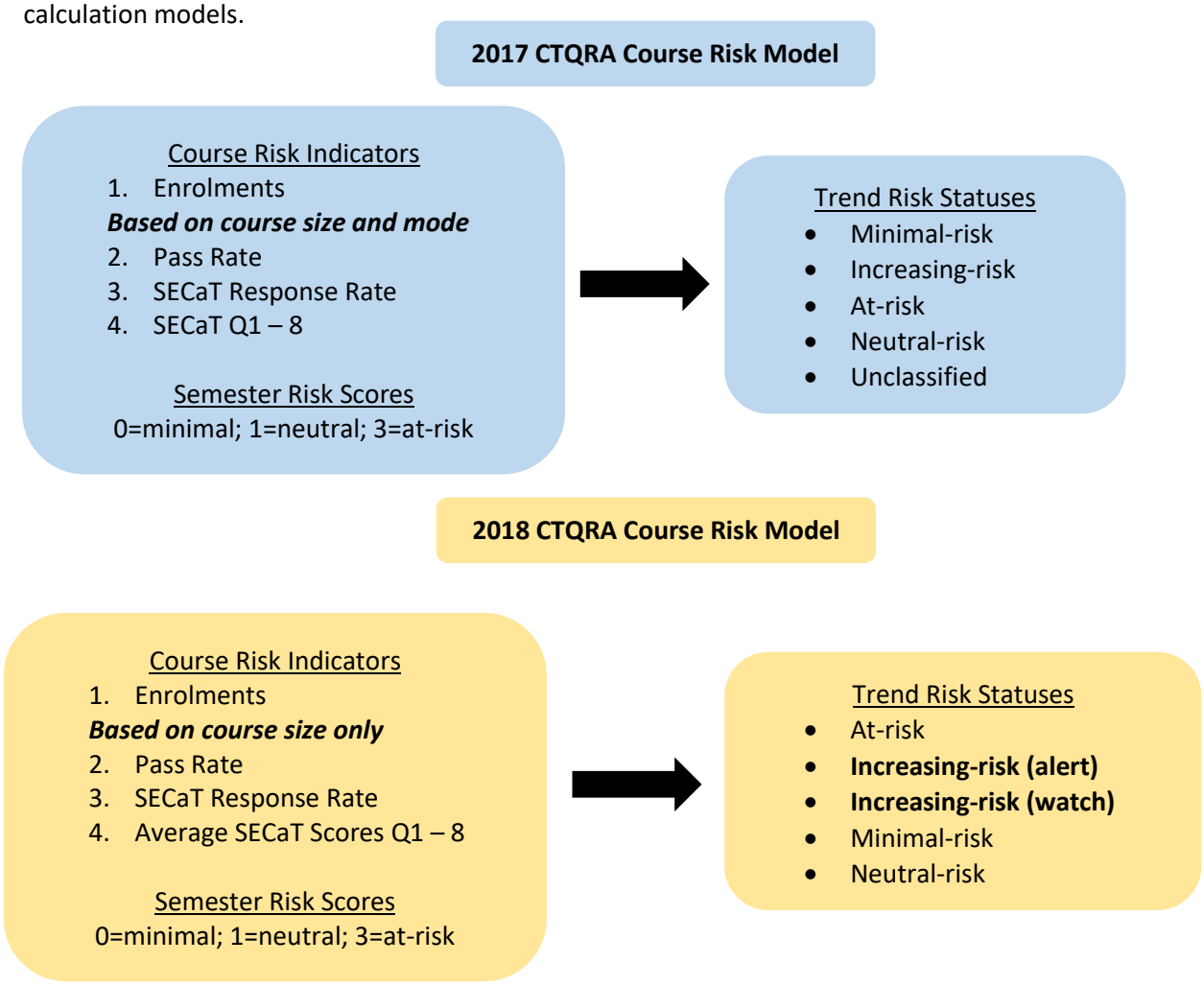


Figure 1. A summary of the differences between the 2017 and 2018 course risk calculation models.

Table 1. Differences between the 2017 and 2018 course risk calculation models.

<table>
<tr><th colspan="2">Risk Indicator</th><th>2017 Model</th><th>2018 Model</th></tr>
<tr><td>1.</td><td>Enrolments
(in headcounts)</td><td>At-risk: >20% change between successive offerings
Minimal-risk: <10% change between successive offerings</td><td>No change of at-risk and minimal-risk criteria.</td></tr>
<tr><td colspan="4">A group comparison risk score of 0=minimal-risk, 1=neutral-risk and 3=at-risk.</td></tr>
<tr><td>2.

3.

4.</td><td>Pass Rate

SECaT Response Rate

Average SECaT Scores Q1-8</td><td>Each risk indicator is evaluated in terms of the relevant group (classified by course size and instruction mode) within a School.

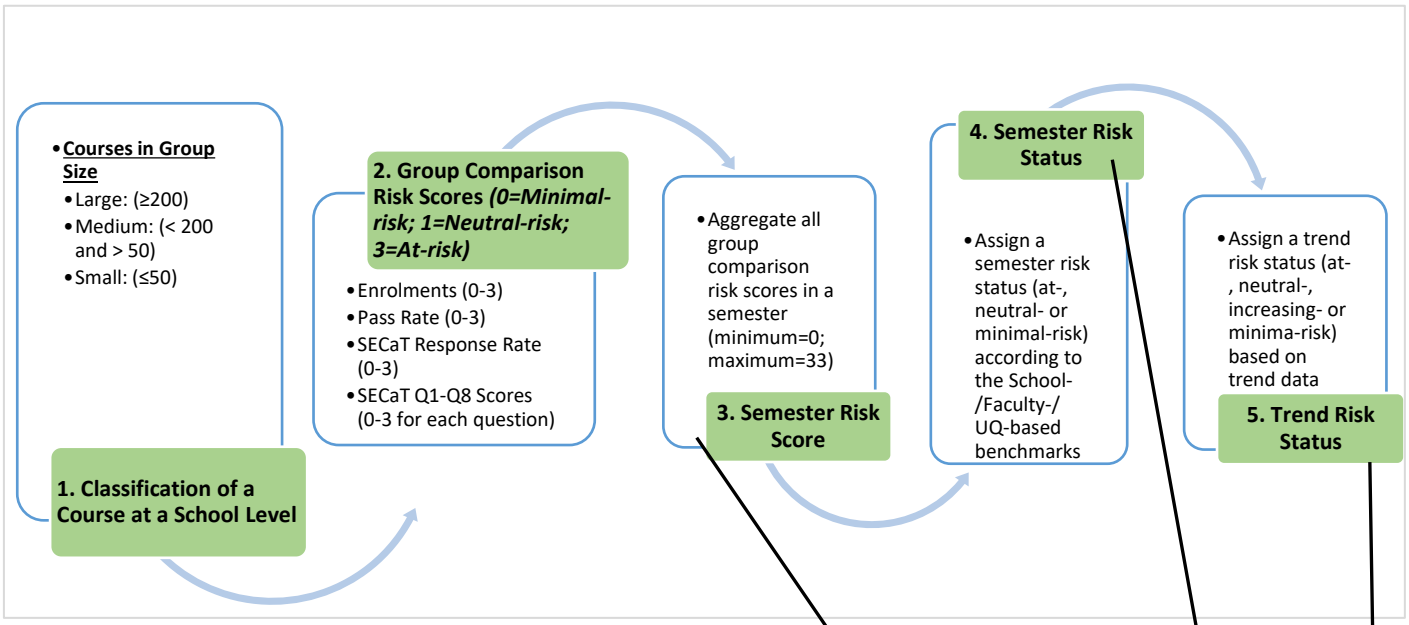
<u>Groups in course size and instruction mode:</u>
• Large/Internal
• Medium/Internal
• Small/Internal
• Large/External
• Medium/External
• Small/External
• Large/Other
• Medium/Other
• Small/Other</td><td>Each risk indicator is evaluated in terms of the relevant group (classified by course size only) within a School.

<u>Groups in course size</u>
• Large (≥200)
• 200 > Medium > 50
• Small (≤50)</td></tr>
<tr><td colspan="4">Using the School specific at-risk and minimal-risk benchmarks, a group comparison score (0=minimal-risk, 1=neutral-risk and 3=at-risk) is assigned to each risk indicator.

The semester risk score is the aggregation of all the group comparison risk scores in a semester. The calculation is as follows:
(Enrolments=0-3; Pass rate=0-3; SECaT response rate=0-3; SECaT Q1=0-3; SECaT Q2=0-3; SECaT Q3=0-3; SECaT Q4=0-3; SECaT Q5=0-3; SECaT Q6=0-3;
SECaT Q7=0-3; SECaT Q8=0-3)</td></tr>
<tr><td colspan="4">Range of Semester Risk Scores = 0 to 33</td></tr>
<tr><td colspan="4">*The following complementary data (not included in the risk calculation) are shown on the Course Dashboards and Detailed Course Reports:
• Percentages of grades 6 and 7 awarded to students per semester
• Course attrition before Census date</td></tr>
</table>

4. The 2018 Enhanced Course Risk Model and Course Dashboard

A series of steps shown in Figure 2 are applied in this model to calculate the trend risk status attributed to each course.



1. Classification of a Course at a School Level

Using the course ABCD1234 as an example, its classification is as follows:

School XYZ	
ABCD1234 (Semester 2, 2017)	
Group in Course Size	Large

2. Group Comparison Risk Scores

Risk Indicator – Enrolments (in headcounts)

The risk indicator – enrolments focuses on the degree of fluctuations between successive offerings.

Risk Indicator	Criterion for At-Risk	Criterion for Neutral-Risk	Criterion for Minimal-Risk
Enrolments	**> 20% change between successive offerings**	**20% ≥ Change ≥ 10% between successive offerings**	**< 10% change between successive offerings**
Group Comparison Risk Score	3	1	0

ABCD1234 (Semester 2, 2017)

Risk Indicator	Semester 2, 2017	Semester 1, 2017	Percentage Change	Group Comparison Risk Score
Enrolments	500	480	**4.17%**	**0**

Risk Indicators – Pass Rate, SECaT Response Rate & Average SECaT Scores Q1-Q8

The at-risk and minimal-risk benchmarks for each group (large, medium and small course size) have been established by calculating the weighted means of the 20% and 80% cut-off values based on historical data from 2011 to 2016 inclusive. The at-risk and minimal-risk benchmarks are used to determine the group comparison risk scores for each group. These benchmarks were used in the 2017 CTQRA process and are expected the same will be used until 2020. Aggregation of the relevant School benchmarks will form the Faculty benchmarks and UQ benchmarks.

Based on the School-based benchmarks, a group comparison risk score of 0=minimal-risk; 1=neutral-risk or 3=at-risk is assigned to each risk indicator for the course ABCD1234.

Risk Indicator/ Group	Value	School At-Risk Benchmark	School Minimal-Risk Benchmark	Group Comparison Risk Score
Enrolments	500	Refer to the above (Point 2)		0
Pass Rate	73.0%	77%	87%	3
SECaT Response Rate	25.4%	20%	34%	1
Average SECaT Score Q1	4.33	3.84	4.22	0
Average SECaT Score Q2	4.46	3.68	4.25	0
Average SECaT Score Q3	3.99	3.61	4.10	1
Average SECaT Score Q4	4.08	3.58	4.11	1
Average SECaT Score Q5	3.98	3.68	4.16	1
Average SECaT Score Q6	4.12	3.47	3.93	0
Average SECaT Score Q7	4.33	3.76	4.27	0
Average SECaT Score Q8	4.43	3.57	4.10	0
			Semester Risk Score	**7/33**

3. Semester Risk Score

The semester risk score is the aggregation of all the group comparison risk scores in a semester. The range of semester risk score varies from 0 to 33. The higher the semester risk score, the higher the risk of a course. For ABCD1234, the semester risk score is 7 for Semester 2, 2017.

4. Semester Risk Status

A semester risk status is assigned to a course based on the School-based benchmarks and the conditions outlined below. The at-risk and minimal-risk benchmarks have been established by calculating the means of the semester risk scores at the 10% and 90% cut-off based on historical data from 2011 to 2016 inclusive. These benchmarks were used in the 2017 CTQRA process and are expected the same will be used until 2020. *Please note data for the first offering of a course during 2011 to 2016 are excluded, as changes in enrolment cannot be determined.*

At-Risk	Neutral-Risk	Minimal-Risk
• Semester risk score ≥ at-risk benchmark	• At-risk benchmark> Semester risk score> Minimal-risk benchmark	• Semester risk score ≤ Minimal-risk benchmark

The at-risk benchmark for the School of XYZ is 20 and the minimal-risk benchmark is 6. For Semester 2, 2017, since the semester risk score for ABCD1234 is 7 which is smaller than 20 but greater than 6, this course is assigned a ***neutral-risk*** semester risk status.

5. Trend Risk Status

The trend risk status of a course is determined based on the 'Semester Risk Status' and/or 'Semester Risk Scores' according to the conditions outlined in the below table. The trend risk status applies to courses that have been offered at least once in the last 7 semesters and at least three times between Semester 1, 2011 and Semester 2, 2017 (inclusive). Courses that have

- not yet been delivered at least three times between the above specified period; or
- not been offered in the last 7 semesters (including summer semesters); or
- more than 1 instance of 'insufficient data' in the last three offerings; or
- the last offering had 'insufficient data', are considered as 'unclassified' due to the fact that a trend risk status is unable to be determined.

At-Risk	Increasing-Risk (alert)	Increasing-Risk (watch)	Minimal-Risk	Neutral-Risk
• The 'Semester Risk Status' was ***at-risk*** at least 3 times in the last five offerings and the last 'Semester Risk Status' was ***at-risk***.	• The 'Semester Risk Score' showed an increasing trend in all the offerings. AND • The last 'Semester Risk Status' was ***at-risk***.	• The 'Semester Risk Score' showed an increasing trend in all the offerings. AND • The 'Semester Risk Score' showed a ***≥20% increase*** between the last two offerings (if the second-last offering had 'insufficient data', then the score in the previous offering is used) AND • The last 'Semester Risk Status' was <u>not</u> at-risk.	• The 'Semester Risk Status' was ***minimal-risk*** in the last three offerings.	• The course is <u>not</u> being classified as *at-, increasing- or minimal-risk.*

Appendix A

An example of the calculation of the School, Faculty and UQ at-risk pass rate benchmark for large courses.

Risk Indicator: Pass Rate
Gr: Course Size = Large; Instruction Mode = Internal

	Semester	No. of Courses	School At-Risk Cut-off	School At-Risk Benchmark	Faculty (Schools 1 and 2) At-Risk Benchmark	UQ (Schools 1 to 6) At-Risk Benchmark
School 1	S1, 2011 S2, 2011 S3, 2011 S1, 2012 S2, 2012 S3, 2012 … S3, 2016	$C_{1.1}$ $C_{1.2}$ $C_{1.3}$ $C_{1.4}$ $C_{1.5}$ $C_{1.6}$ … $C_{1.n1}$	$X_{1.1}$ $X_{1.2}$ $X_{1.3}$ $X_{1.4}$ $X_{1.5}$ $X_{1.6}$ $X_{1.n1}$	$(X_{1.1}*C_{1.1} + X_{1.2}*C_{1.2} + X_{1.3}*C_{1.3} + X_{1.4}*C_{1.4} + X_{1.5}*C_{1.5} + X_{1.6}*C_{1.6} + \dots X_{1.n1}*C_{1.n1})/(C_{1.1} + C_{1.2} + C_{1.3} + C_{1.4} + C_{1.5} + C_{1.6} + C_{1.n1})$	$((X_{1.1}*C_{1.1} + X_{1.2}*C_{1.2} + X_{1.3}*C_{1.3} + X_{1.4}*C_{1.4} + X_{1.5}*C_{1.5} + X_{1.6}*C_{1.6} + \dots X_{1.n1}*C_{1.n1}) + (X_{2.1}*C_{2.1} + X_{2.2}*C_{2.2} + X_{2.3}*C_{2.3} + X_{2.4}*C_{2.4} + X_{2.5}*C_{2.5} + X_{2.6}*C_{2.6} + \dots X_{2.n2}*C_{2.n2}))/(C_{1.1} + C_{1.2} + C_{1.3} + C_{1.4} + C_{1.5} + C_{1.6} + C_{1.n1}) + (C_{2.1} + C_{2.2} + C_{2.3} + C_{2.4} + C_{2.5} + C_{2.6} + C_{2.n2})$	$((X_{1.1}*C_{1.1} + X_{1.2}*C_{1.2} + X_{1.3}*C_{1.3} + X_{1.4}*C_{1.4} + X_{1.5}*C_{1.5} + X_{1.6}*C_{1.6} + \dots X_{1.n1}*C_{1.n1}) + (X_{2.1}*C_{2.1} + X_{2.2}*C_{2.2} + X_{2.3}*C_{2.3} + X_{2.4}*C_{2.4} + X_{2.5}*C_{2.5} + X_{2.6}*C_{2.6} + \dots X_{2.n2}*C_{2.n2}) + \dots + (X_{6.1}*C_{6.1} + X_{6.2}*C_{6.2} + X_{6.3}*C_{6.3} + X_{6.4}*C_{6.4} + X_{6.5}*C_{6.5} + X_{6.6}*C_{6.6} + \dots X_{6.n6}*C_{6.n6}))/(C_{1.1} + C_{1.2} + C_{1.3} + C_{1.4} + C_{1.5} + C_{1.6} + C_{1.n1}) + (C_{2.1} + C_{2.2} + C_{2.3} + C_{2.4} + C_{2.5} + C_{2.6} + C_{2.n2}) + \dots + (C_{6.1} + C_{6.2} + C_{6.3} + C_{6.4} + C_{6.5} + C_{6.6} + C_{6.n6})$
School 2	S1, 2011 S2, 2011 S3, 2011 S1, 2012 S2, 2012 S3, 2012 … S3, 2016	$C_{2.1}$ $C_{2.2}$ $C_{2.3}$ $C_{2.4}$ $C_{2.5}$ $C_{2.6}$ … $C_{2.n2}$	$X_{2.1}$ $X_{2.2}$ $X_{2.3}$ $X_{2.4}$ $X_{2.5}$ $X_{2.6}$ $X_{2.n2}$	$(X_{2.1}*C_{2.1} + X_{2.2}*C_{2.2} + X_{2.3}*C_{2.3} + X_{2.4}*C_{2.4} + X_{2.5}*C_{2.5} + X_{2.6}*C_{2.6} + \dots X_{2.n2}*C_{2.n2})/(C_{2.1} + C_{2.2} + C_{2.3} + C_{2.4} + C_{2.5} + C_{2.6} + C_{2.n2})$		
School 3	S1, 2011 S2, 2011 S3, 2011 S1, 2012 S2, 2012 S3, 2012 … S3, 2016	$C_{3.1}$ $C_{3.2}$ $C_{3.3}$ $C_{3.4}$ $C_{3.5}$ $C_{3.6}$ … $C_{3.n3}$	$X_{3.1}$ $X_{3.2}$ $X_{3.3}$ $X_{3.4}$ $X_{3.5}$ $X_{3.6}$ $X_{3.n3}$	…		
School 4	…	… $C_{4.n4}$	… $X_{4.n4}$	…		
School 5	…	… $C_{5.n5}$	… $X_{5.n5}$	…		
School 6	…	… $C_{6.n6}$	… $X_{6.n6}$	$(X_{6.1}*C_{6.1} + X_{6.2}*C_{6.2} + X_{6.3}*C_{6.3} + X_{6.4}*C_{6.4} + X_{6.5}*C_{6.5} + X_{6.6}*C_{6.6} + \dots X_{6.n6}*C_{6.n6})/(C_{6.1} + C_{6.2} + C_{6.3} + C_{6.4} + C_{6.5} + C_{6.6} + C_{6.n6})$		