

**STATISTICAL PROPERTIES OF THE  
COURSE EXPERIENCE SURVEY  
ON-LINE VERSION  
SPRING TERM 2015**

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The *Course Experience Survey* (CES) was developed by the University of Victoria to provide a common instrument for collecting information on student perceptions of the instructor and course characteristics for each course delivered by the University. The instrument (Figure 1) consists of 8 items about the instructor, 7 items focusing on course characteristics and another 5 items asking about the responding student. There is also space for the inclusion of items specifically developed by Departments and a section for written comments from the students. This report focuses on the 15 instructor and course-related items, and response rates for the on-line version of the CES which was administered for Spring 2015 courses.

In the Spring term of 2015 the CES was administered for all University courses in an on-line format. For this analysis 34 429 complete student CES records<sup>1</sup> were used. These response data were analyzed to investigate item characteristics using conventional item analysis, and at the instrument level the structure of the CES was investigated with a principle component analysis. Also, response rates were investigated.

### **ITEM CHARACTERISTICS**

In the item analyses the 8 Instructor items were treated as a test to generate an overall item mean score and an index of internal item consistency (the reliability coefficient reported is Cronbach's alpha ( $\alpha$ )). In addition, for each item the average item score (the item difficulty) was calculated and a discrimination index produced (the correlation between item score and overall test score). This analysis was repeated for the 7 Course items.

The items asked students to response to statements about the instructor or the course by selecting one of the five following points:

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<sup>1</sup> For these analyses any record that had missing data was removed from the analysis.

1. *Very Poor*
2. *Poor*
3. *Adequate*
4. *Good*
5. *Excellent*

Student responses were treated as interval data and so item means and standard deviations were calculated. For these analyses all complete student records were analysed.

#### INSTRUCTOR

The results of the item analysis are reported in Table 1 and response distributions in Figure 2. All means for the Instructor items were over 4, indicating overall positive student evaluations of the instructors delivering courses at the University of Victoria. The mean score for the overall rating of course instructor (Item 8) was 4.2 – a location between *Good* and *Excellent*.

The item discriminations reported are the correlation between the item score and the total test score (summing the values for each of the 8 instructor items). The discrimination indices are all 0.70 or greater (maximum values is 1.0) – this is indicative of a relatively homogeneous item set which is a good thing since these items all focus on the instructor.

The reliability index for this 8-item instrument is 0.93 which is quite high for an 8-item instrument given the maximum value of  $\alpha$  is 1.0 – indicating a high level of internal consistency amongst the 8 items.

Inter-item correlations were calculated (Table 3a) and they show all items to be positively correlated. All Instructor items have moderately strong correlations (0.56 to 0.81) with item 8 – the overall rating of the instructor.

#### COURSE

The results of the analysis of Course items are reported in Table 2 and the response distributions are reported in Figure 3. All means for Course items were over 4 and as with the Instructor items this indicates that students were generally positive in their evaluations of the courses they took at UVic. The mean for the overall rating of the course (Item 15) was 4.1 – a location between *Good* and *Excellent*.

The discrimination indices for the Course items are all 0.79 or greater – and as with the Instructor items this would indicate a homogenous item set for the student evaluation of courses at the University.

The reliability index for the 7 Course items was 0.93 – indicating a high level of internal consistency.

The inter-item correlations for the Course items (Table 3b) were all positive and the correlations to the item on effective learning experience provided by the course (item 15) were strong ranging from 0.69 to 0.77.

#### RELATION OF INSTRUCTOR TO COURSE ITEMS

Table 3c lists the correlations between Instructor and Course items. All correlations were positive, ranging from 0.38 to 0.77. The highest correlation (0.77) was between the overall ratings of Instructor (item 8) and course (item 15).

### **INSTRUMENT STRUCTURE**

The CES is intended to measure students perceptions of both the instructor and the course – two related but conceptually distinct elements of a university course. To investigate structure a principle component analysis was conducted.

The analysis yielded a 2-component solution (Table 4 and Figure 4) that accounted for 69% of total variance with the 8 Instructor items loading on component 2 and the 7 Course items loading on component 1. This result supports the design of the instrument as a measure of two elements of university course – the instructor and the curriculum. However it should be noted that the two components are closely and positively related as evidenced by the factor loadings plot (Figure 4) and the positive correlation between items from the two sections of the instrument (Table 3c).

### **RESPONSE RATES**

The completion of the CES at the end of a course is requested of students but is not mandatory. The rate of student response can be an important consideration in the use of the course evaluation data. The lower the level of response rate, the less representative the data would tend to be of the student population.

To investigate the response rates associated with UVic's CES, data was aggregated at the course level – the number of students invited to respond (the enrolled students or class size) and the number of students who completed the CES for the course. The response rate was simply the number of students

responding to the CES divided by the number invited to respond for each course. In total the analysis involved 1 787 courses.

The average response rate for Spring Term 2015 courses was 0.52 with a fair range of rates across courses ( $sd=0.23$ ) as illustrated by the distribution of rates across courses (Figure 5).

There was also variation in the size of classes<sup>2</sup> (Figure 6) with an overall average of 38 and a range from 5 to 340. The correlation between the response rate and the class size was near-zero (-0.08) and this lack of linear relationship is evident in the plot of class size and response (Figure 7).

## RELATIONSHIPS

Analyses were conducted to investigate relationships between the evaluation accorded to the instructor and the course by students and:

- The level of a course, and
- The number of students in the class.

To do this, results were aggregated by course<sup>3</sup> and only the results for the overall ratings of instructor and course (items *Instructor 8* and *Course 15*) are reported to simplify the displays.

### COURSE LEVEL AND CES ITEM SCORES

Courses were aggregated by level (100 to 700) and average course scores for item 8 and 15 were calculated (Table 5) and plotted (Figure 8). The numbers of courses varied by level with Level 300 courses being the most frequent ( $n = 559$ ) and Level 600 and 700 course being least frequent ( $n < 20$ ).

The overall rating of the Instructor shows some variation across the course levels with graduate level courses having higher mean ratings than undergraduate course. And this holds for overall Course rating.

### CLASS SIZE AND CES ITEM SCORES

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<sup>2</sup> This is derived from the number of students invited to respond to the CES.

<sup>3</sup> In previous analyses of item scores the data were analyzed at the individual student level

This analysis is based upon student response data aggregated at the course level. The class size was based upon the number of responding students<sup>4</sup> and so is not equivalent to section size (or the number of students invited to respond to the CES).

The overall ratings of Instructor and Course showed a slight decline as class size decreased. The Instructor mean for courses with class sizes in the 1 to 10 range was 4.38 (sd=0.61) and for Instructors of courses with class sizes greater than 100 the mean overall rating was 4.22 (sd=0.43) – a general decline.

## IN SUMMARY


The *Course Experience Survey* administered on-line in the Spring Term of 2015 has statistical properties similar to the paper-pencil version of the instrument administered in 2009. The items appear to have a two-component structure and the components are strongly and positively correlated.

The results show that UVic students generally rate their instructors and courses very positively. There does not appear to be strong associations between section sizes and response rates, between course level and rating of instructors and courses, and between class size and rating of instructors and courses.

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<sup>4</sup> In the analysis of response rates, the number of student invited to respond was the index of class size.

Figure 1: The Course Experience Survey – Instructor and Course-related items



## Course Experience Survey

Course Name: \_\_\_\_\_ Course Section#: \_\_\_\_\_ Instructor: \_\_\_\_\_  
(e.g. HA 260) (e.g. A01)

*The University of Victoria values your feedback on your course experience. Your responses will be considered in the assessment of instructors and for improving the design of courses. All your answers are anonymous. Please contribute your ratings by responding to the questions below. Thank you!*

Shade circles like this:

**I Instructor's teaching.**  
 Please provide your rating on the following statements:

	Very Poor 1	Poor 2	Adequate 3	Good 4	Excellent 5
1. The instructor was prepared for course sessions.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The instructor's explanations of concepts were clear.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The instructor motivated you to learn in this course.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The instructor was available to answer your questions or provide extra assistance as required .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. The instructor ensured that your assignments and tests were returned within a reasonable time.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The instructor was helpful in providing feedback to you to improve your learning in this course.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The instructor demonstrated respect for students and their ideas.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Overall, the instructor was effective in this course.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**II Course design.**  
 Please provide your rating on the following statements:

	Very Poor 1	Poor 2	Adequate 3	Good 4	Excellent 5
9. The course structure, goals and requirements were clear.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. The materials provided for learning the course content (e.g. handouts, posted material, lab manuals) were clear.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The assigned work helped your understanding of the course content ....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. The course provided opportunities for you to become engaged with the course material, for example through class discussions, group work, student presentations, on-line chat, or experiential learning.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. The methods of assessment used to evaluate your learning in the course were fair .....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. The course provided relevant skills and information (e.g. to other courses, your future career, or other contexts).....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Overall, the course offered an effective learning experience.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Faculty of, Department  
 Revised: November 9, 2009 (Please turn over to Page 2...)

TABLE 1: INSTRUCTOR ITEMS – SUMMARY STATISTICS

Item	Item Mean	Standard Deviation	Item Discrimination
Instructor 1	4.44	0.78	0.79
Instructor 2	4.10	0.98	0.85
Instructor 3	4.01	1.08	0.86
Instructor 4	4.29	0.87	0.82
Instructor 5	4.23	0.92	0.70
Instructor 6	4.03	1.01	0.85
Instructor 7	4.45	0.81	0.77
Instructor 8	4.24	0.93	0.92

$\alpha = 0.93$

FIGURE 2: INSTRUCTOR ITEMS – RESPONSE DISTRIBUTIONS

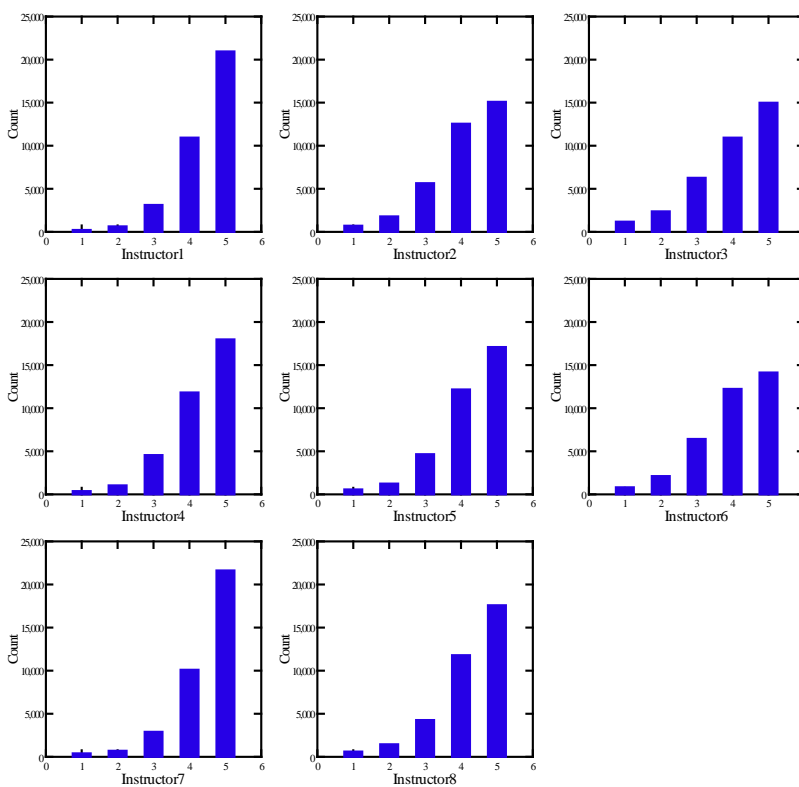


TABLE 2: COURSE ITEMS – SUMMARY STATISTICS

Item	Item Mean	Standard Deviation	Item Discrimination
Course 9	4.10	0.92	0.82
Course 10	4.06	0.95	0.83
Course 11	4.06	0.97	0.86
Course 12	4.00	1.04	0.79
Course 13	4.03	0.97	0.83
Course 14	4.11	0.96	0.81
Course 15	4.10	0.94	0.92

$\alpha = 0.93$

FIGURE 3: COURSE ITEMS – RESPONSE DISTRIBUTIONS

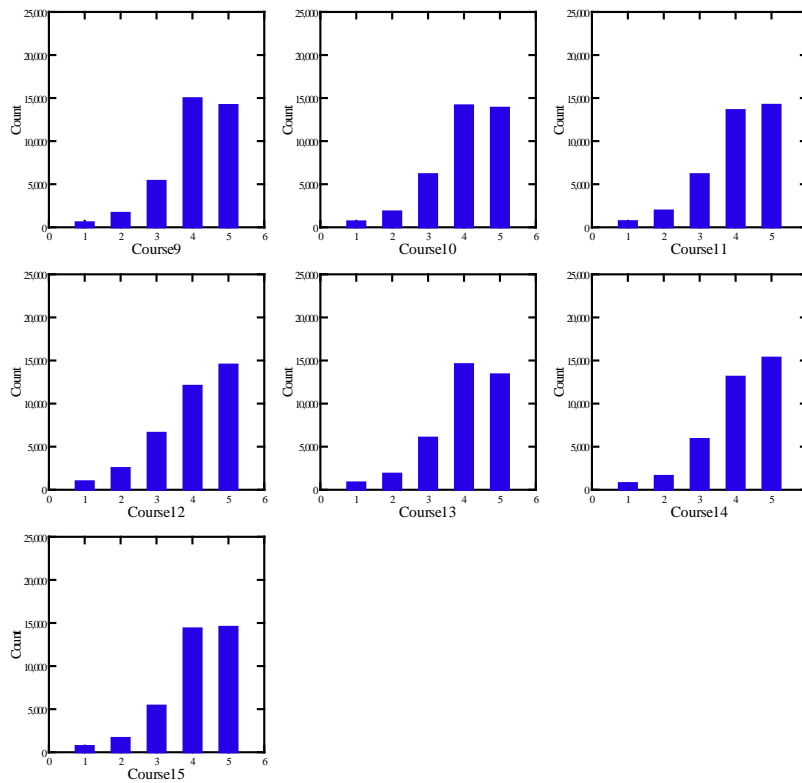




TABLE 3: ITEM CORRELATIONS

## 3a: Instructor-related Items

	Inst 1	Instr 2	Inst 3	Instr 4	Instr 5	Inst 6	Inst 7
Instructor 2	0.69						
Instructor 3	0.61	0.74					
Instructor 4	0.58	0.61	0.65				
Instructor 5	0.50	0.48	0.49	0.54			
Instructor 6	0.57	0.65	0.69	0.69	0.60		
Instructor 7	0.56	0.58	0.60	0.62	0.46	0.61	
Instructor 8	0.72	0.81	0.81	0.70	0.56	0.74	0.70

## 3b: Course-related Items

	Course9	Course10	Course11	Course12	Course13	Course14
Course 10	0.72					
Course 11	0.65	0.69				
Course 12	0.52	0.57	0.65			
Course 13	0.64	0.62	0.65	0.59		
Course 14	0.58	0.58	0.63	0.60	0.60	
Course 15	0.72	0.72	0.75	0.69	0.73	0.77

## 3c: Instructor by Course-related Items

	Course9	Course10	Course11	Course12	Course13	Course14	Course15
Instructor 1	0.56	0.53	0.50	0.45	0.49	0.48	0.60
Instructor 2	0.62	0.61	0.58	0.53	0.56	0.55	0.69
Instructor 3	0.59	0.58	0.61	0.58	0.58	0.61	0.74
Instructor 4	0.51	0.51	0.51	0.51	0.53	0.50	0.59
Instructor 5	0.46	0.44	0.43	0.38	0.47	0.41	0.48
Instructor 6	0.57	0.56	0.58	0.56	0.61	0.55	0.66
Instructor 7	0.49	0.47	0.46	0.45	0.52	0.46	0.57
Instructor 8	0.63	0.61	0.61	0.58	0.62	0.60	0.77

TABLE 4: ROTATED COMPONENT LOADINGS

Item	Factor 1	Factor 2
Instructor 1	0.34	0.73
Instructor 2	0.47	0.70
Instructor 3	0.51	0.68
Instructor 4	0.32	0.77
Instructor 5	0.24	0.67
Instructor 6	0.43	0.73
Instructor 7	0.28	0.75
Instructor 8	0.47	0.79
Course 9	0.72	0.39
Course 10	0.76	0.34
Course 11	0.81	0.31
Course 12	0.72	0.32
Course 13	0.72	0.38
Course 14	0.75	0.32
Course 15	0.80	0.46

FIGURE 4: FACTOR LOADINGS PLOT

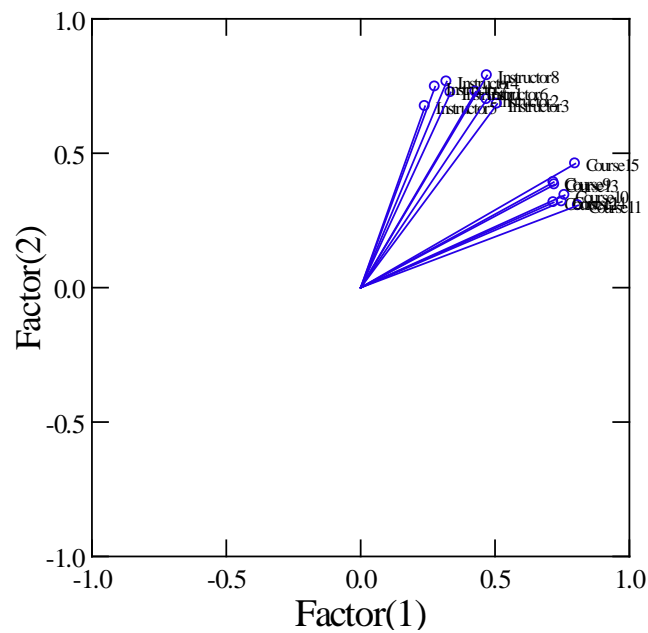


FIGURE 5: RESPONSE RATES, SPRING 2015

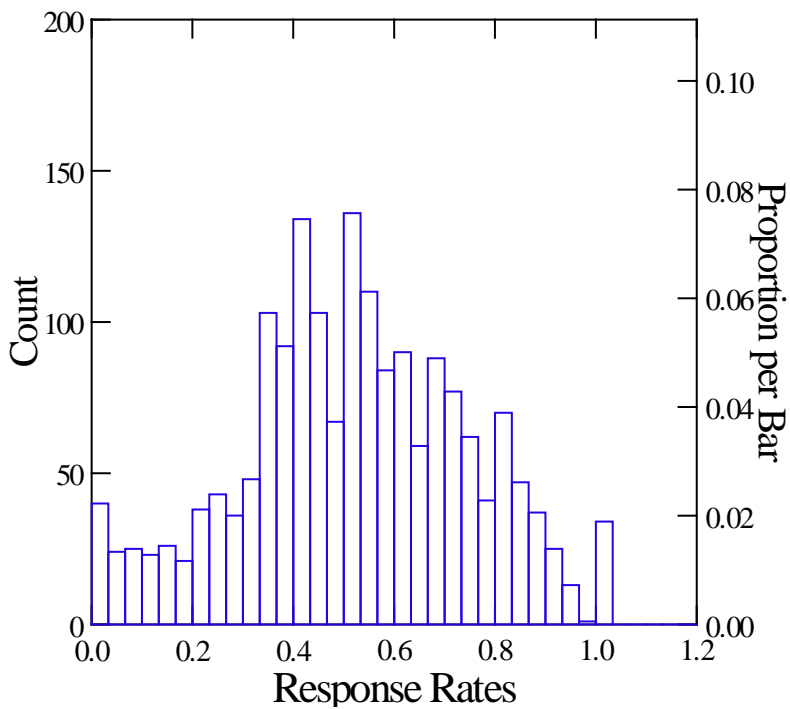


FIGURE 6: CLASS SIZES, SPRING 2015

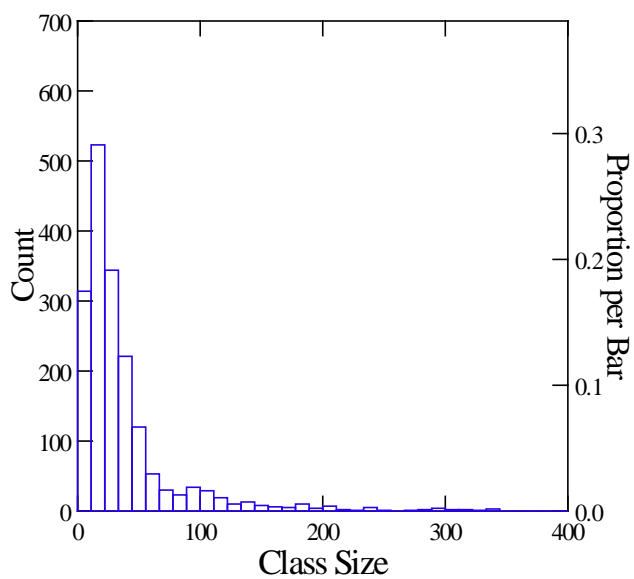


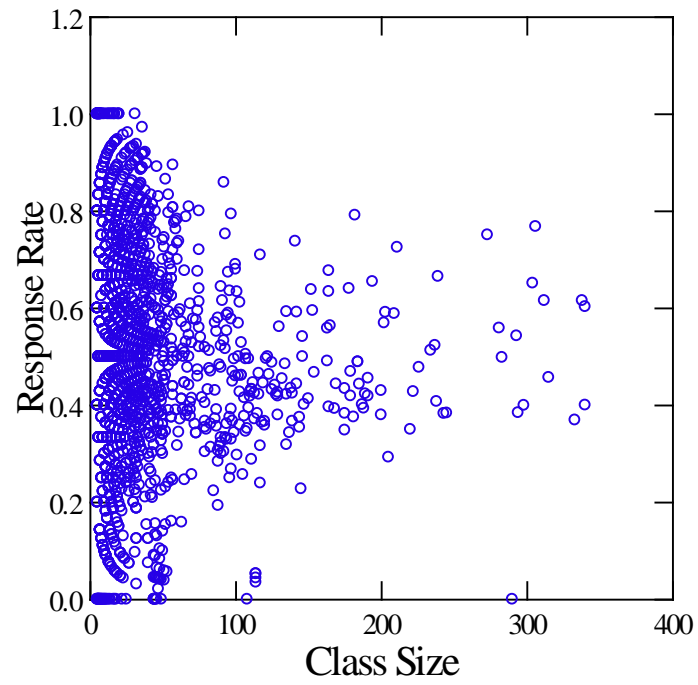
FIGURE 7: PLOT OF CLASS SIZE TO RESPONSE RATE ( $R = -0.08$ )

TABLE 5: ITEM MEANS BY COURSE LEVEL

<b>Course Level (n)</b>	<b>ITEM 8</b>	<b>ITEM 15</b>
<b>Level 100 (n = 338)</b>		
Arithmetic Mean	4.36	4.19
Standard Deviation	0.39	0.39
<b>Level 200 (n = 278)</b>		
Arithmetic Mean	4.24	4.13
Standard Deviation	0.60	0.55
<b>Level 300 (n = 559)</b>		
Arithmetic Mean	4.25	4.12
Standard Deviation	0.60	0.59
<b>Level 400 (n = 310)</b>		
Arithmetic Mean	4.32	4.22
Standard Deviation	0.58	0.58
<b>Level 500 (n = 234)</b>		
Arithmetic Mean	4.47	4.35
Standard Deviation	0.55	0.56
<b>Level 600 (n = 14)</b>		
Arithmetic Mean	4.65	4.43
Standard Deviation	0.39	0.41
<b>Level 700 (n = 15)</b>		
Arithmetic Mean	4.65	4.52
Standard Deviation	0.45	0.47

FIGURE 8: CES ITEM MEANS BY COURSE LEVEL

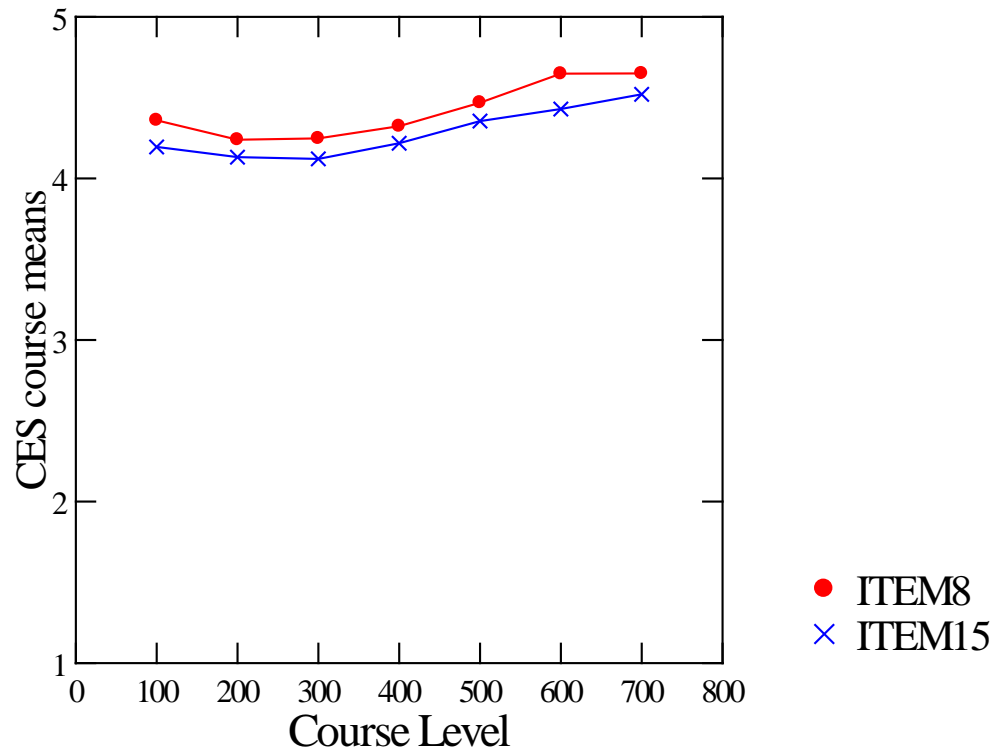


TABLE 6: ITEM MEANS BY CLASS SIZE

<b>Class Size<sup>*</sup> (n)</b>	<b>ITEM 8</b>	<b>ITEM 15</b>
Size 1 to 10 (n = 700)		
Arithmetic Mean	4.38	4.27
Standard Deviation	0.61	0.61
Size 11 to 20 (n = 515)		
Arithmetic Mean	4.31	4.18
Standard Deviation	0.54	0.53
Size 21 to 30 (n = 230)		
Arithmetic Mean	4.31	4.16
Standard Deviation	0.51	0.48
Size 31 to 50 (n = 166)		
Arithmetic Mean	4.23	4.08
Standard Deviation	0.49	0.47
Size 51 to 100 (n = 98)		
Arithmetic Mean	4.11	3.99
Standard Deviation	0.48	0.42
Size – over 100 (n = 38)		
Arithmetic Mean	4.22	4.05
Standard Deviation	0.43	0.44

\* The number of students within the course who responded to the CES

FIGURE 9: CES ITEM MEANS BY CLASS SIZE

