

# Large Scale-Fully Online BYOD Final Exams: *Not Your Parent's Multiple Choice*



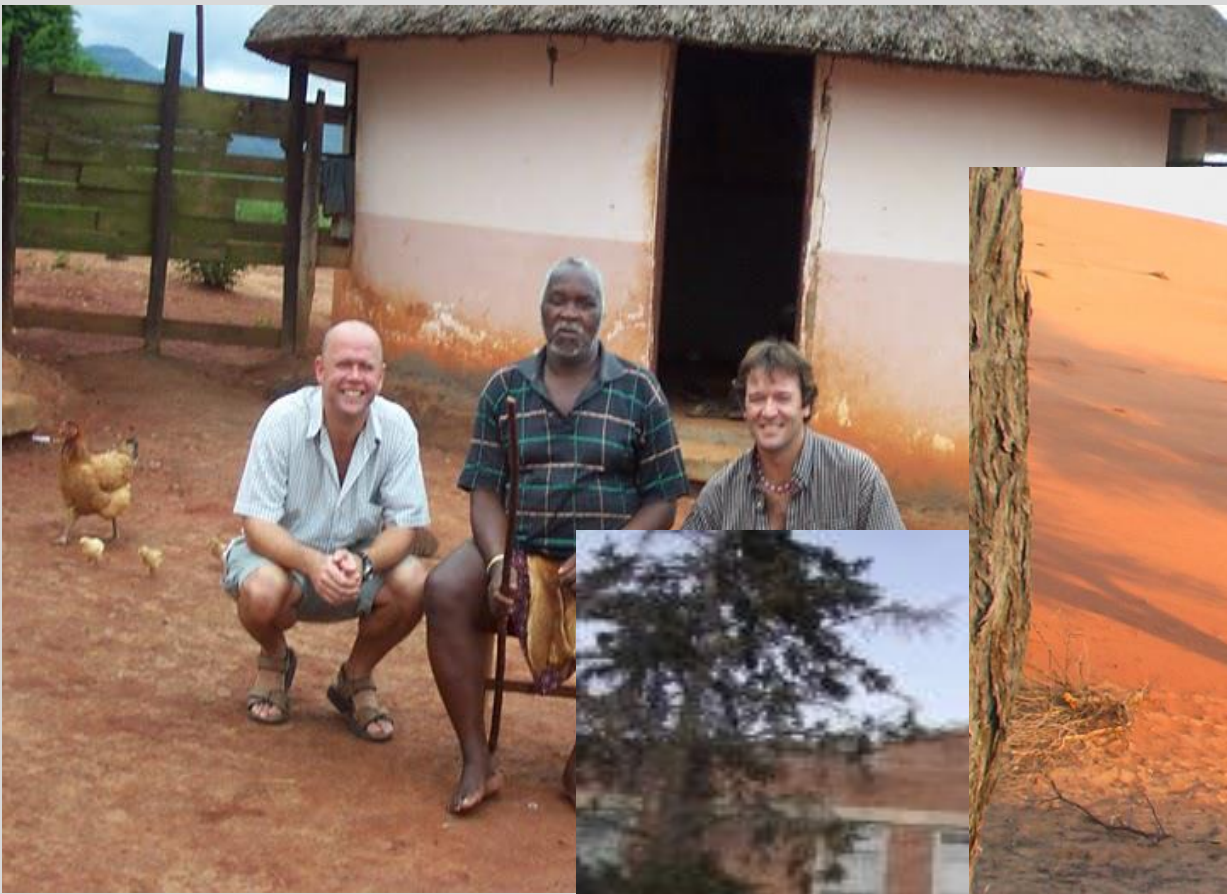
GML<sup>2</sup> 2015

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# Disclaimer

Any views or opinions presented here are solely those of the presenter and do not necessarily represent those of Sauder or UBC administration, faculty, instructors or staff









a place of mind



**SAUDER**  
School of Business

ROBERT H. LEE  
GRADUATE SCHOOL

- Vancouver, British Columbia
- ~58,000 students
- 17 faculties
- 32<sup>nd</sup> in Times Higher Ed Global Rankings

- ~3600 BCom, MBA, Ph.D. students
- Ranked 20<sup>th</sup> in world by Financial Times amongst B-schools in research
- Ranked 49<sup>th</sup> in world by Financial Times for Exec. Ed.



Design

Logistics

Security

Data

Future

Rob's  
Rant

Bruises

Culture

Online BYOD  
Exam for  
~1260

# What we don't...



# What we do



**NOBODY** expects the Spanish Inquisition!  
Amongst our weaponry are such diverse elements as:  
fear, surprise, ruthless efficiency, an almost  
fanatical devotion to the Pope,  
and nice red uniforms - Oh damn!

```

4] : 05-Dec-2014 12:02:38.451 queries: info: client 206.87.197.242#5
4] : 05-Dec-2014 12:02:56.168 queries: info: client 206.87.197.242#4
4] : 05-Dec-2014 12:03:20.907 queries: info: client 206.87.197.242#5
4] : 05-Dec-2014 12:03:35.181 queries: info: client 206.87.197.242#5
4] : 05-Dec-2014 12:04:33.495 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:34.518 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:35.545 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:36.639 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:37.732 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:38.754 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:39.761 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:40.812 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:04:40.814 queries: info: client 206.87.197.242#49736
4] : 05-Dec-2014 12:05:26.100 queries: info: client 206.87.197.242#63283
4] : 05-Dec-2014 12:05:56.026 queries: info: client 206.87.197.242#50718
4] : 05-Dec-2014 12:06:21.002 queries: info: client 206.87.197.242#59274
4] : 05-Dec-2014 12:06:35.855 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:36.878 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:37.975 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:39.022 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:40.119 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:41.208 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:42.250 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:43.261 queries: info: client 206.87.197.242#57336
4] : 05-Dec-2014 12:06:43.263 queries: info: client 206.87.197.242#57336

```

# Home



Column **Midterm Exam – March 2015 (Test)** < >

## Column Details

|                 |                                  |
|-----------------|----------------------------------|
| Column          | Midterm Exam – March 2015 (Test) |
| Points Possible | 100                              |
| Description     |                                  |

### Statistics

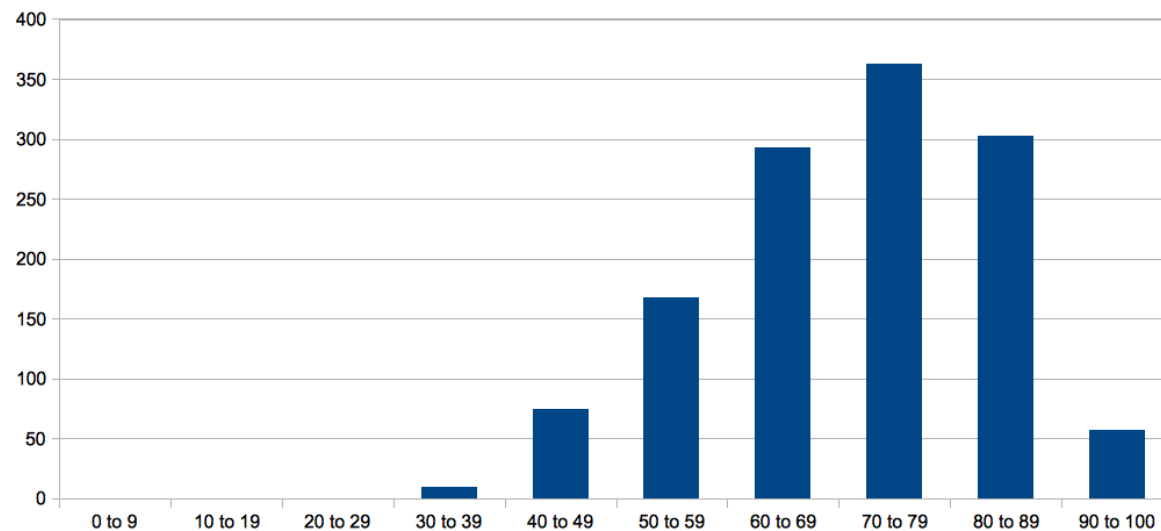
|                    |             |
|--------------------|-------------|
| Count              | <b>1266</b> |
| Minimum Value      | 34.60       |
| Maximum Value      | 98.50       |
| Range              | 63.90       |
| Average            | 71.32       |
| Median             | 72.53       |
| Standard Deviation | 12.52       |
| Variance           | 156.70      |

### Status Distribution

|               |    |
|---------------|----|
| Null          | 24 |
| In Progress   | 0  |
| Needs Grading | 0  |
| Exempt        | 0  |

### Grade Distribution

|                  |     |
|------------------|-----|
| Greater than 100 | 0   |
| 90 – 100         | 57  |
| 80 – 89          | 302 |
| 70 – 79          | 363 |
| 60 – 69          | 293 |
| 50 – 59          | 168 |
| 40 – 49          | 74  |
| 30 – 39          | 9   |
| 20 – 29          | 0   |
| 10 – 19          | 0   |
| 0 – 9            | 0   |
| Less than 0      | 0   |


← OK



## Access Log

The Test Time column shows times relative to the start of the test and the Time Spent column shows the time between the current Access Type and the previous Access Type. Time format is: hh:mm:ss.

| Date and Time      | Access Type   | Test Time | Time Spent* |
|--------------------|---|-----------|-------------|
| 4/12/14 8:30:35 AM | Test started  | 00:00:00  | 00:00:00    |
| 4/12/14 8:31:37 AM | Saved question 1 multiple times over a period of: 00:00:09  | 00:01:02  | 00:01:02    |
| 4/12/14 8:32:19 AM | Saved question 2  | 00:01:44  | 00:00:42    |
| 4/12/14 8:33:06 AM | Saved question 3  | 00:02:31  | 00:00:46    |
| 4/12/14 8:35:23 AM | Saved question 4  | 00:04:48  | 00:02:17    |
| 4/12/14 8:36:11 AM | Saved question 5  | 00:05:36  | 00:00:47    |
| 4/12/14 8:36:52 AM | Saved question 6  | 00:06:17  | 00:00:41    |
| 4/12/14 8:39:19 AM | Saved question 7 multiple times over a period of: 00:00:24  | 00:08:44  | 00:02:26    |
| 4/12/14 8:40:30 AM | Saved question 8  | 00:09:55  | 00:01:11    |
| 4/12/14 8:41:46 AM | Saved question 9  | 00:11:11  | 00:01:15    |
| 4/12/14 8:42:32 AM | Saved question 10   | 00:11:57  | 00:00:46    |
| 4/12/14 8:43:03 AM | Saved question 11   | 00:12:28  | 00:00:30    |
| 4/12/14 8:43:29 AM | Saved question 12   | 00:12:54  | 00:00:25    |
| 4/12/14 8:44:42 AM | Saved question 13   | 00:14:07  | 00:01:12    |
| 4/12/14 8:46:47 AM | Saved question 14 multiple times over a period of: 00:00:03 | 00:16:12  | 00:02:04    |
| 4/12/14 8:47:58 AM | Saved question 15   | 00:17:23  | 00:01:11    |
| 4/12/14 8:50:21 AM | Saved question 16 multiple times over a period of: 00:01:39 | 00:19:46  | 00:02:22    |
| 4/12/14 8:52:57 AM | Saved question 17   | 00:22:22  | 00:02:35    |
| 4/12/14 8:55:05 AM | Saved question 18   | 00:24:30  | 00:02:08    |
| 4/12/14 8:56:13 AM | Saved question 16   | 00:25:38  | 00:01:08    |
| 4/12/14 8:58:35 AM | Saved question 19   | 00:28:00  | 00:02:21    |

## Test Summary

|                 |                    |                      |                    |               |              |
|-----------------|--------------------|----------------------|--------------------|---------------|--------------|
| 100.0           | 56                 | 0                    | 1267               | 71.27*        | 01 hr 55 min |
| Possible Points | Possible Questions | In Progress Attempts | Completed Attempts | Average Score | Average Time |
|                 |                    |                      |                    |               |              |

## Discrimination

|    |                  |  |
|----|------------------|--|
| 37 | Good Questions   |  |
| 19 | Fair Questions   |  |
| 0  | Poor Questions   |  |
| 0  | Cannot Calculate |  |

## Difficulty

|    |                  |  |
|----|------------------|--|
| 18 | Easy Questions   |  |
| 37 | Medium Questions |  |
| 1  | Hard Questions   |  |

## Filter Questions

Select Question Type:

All Question Types

Select Discrimination:

All Discrimination

Select Difficulty:

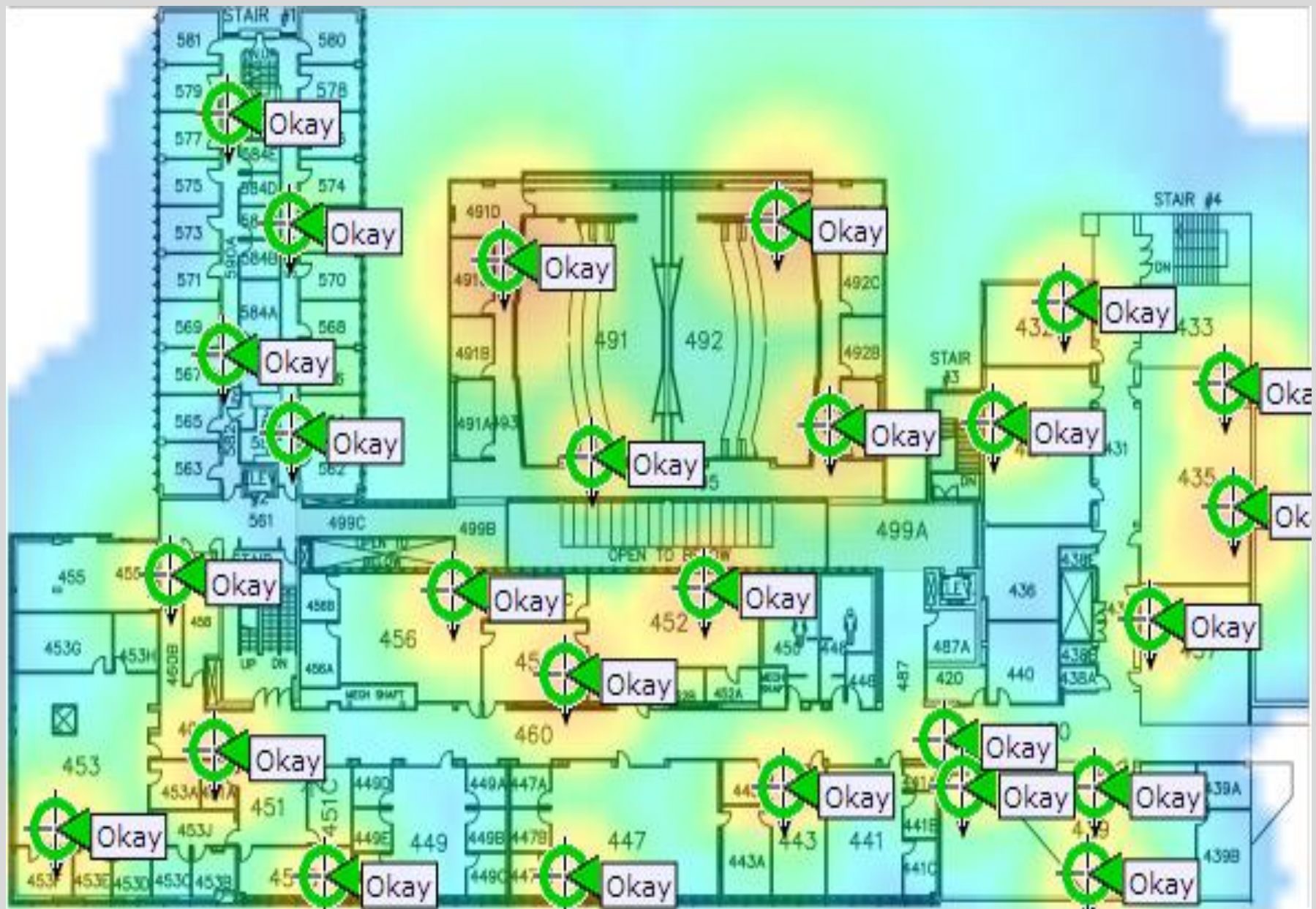
All Difficulty

Go

Reset Filter

Page 1 of 3 > >>

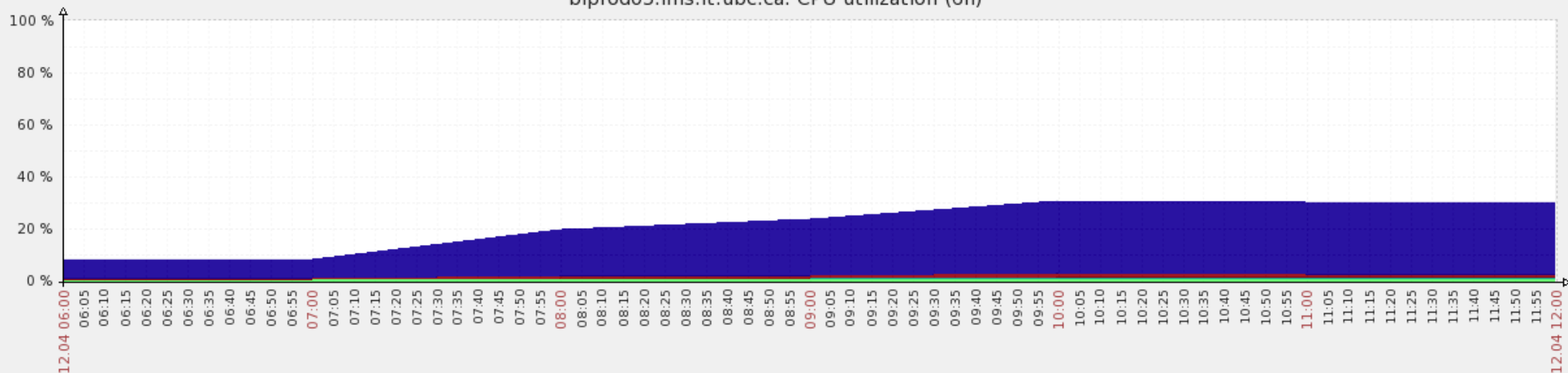
| Question   | Question Type                | Discrimination ▼ | Difficulty | Graded Attempts | Average Score | Std Dev | Std Error |
|--|------------------------------|------------------|------------|-----------------|---------------|---------|-----------|
| QF2: Many hours go into exams, both on the part of instructors and students. Inst...         | Fill in Multiple Blanks      | 0.7              | 75.14%     | 1267            | 3.76          | 1.39    | 0.04      |
| ▲ QF4: Lotus Grain Co. produces gluten-free, fat-free, lactose-free, sugar-free gran...      | Fill in Multiple Blanks      | 0.67             | 60.54%     | 1267            | 2.43          | 1.27    | 0.04      |
| QE Regr4: One data value corresponded to an adult aged 25 who sent or received 60 texts...   | Fill in Multiple Blanks      | 0.6              | 76.56%     | 1267            | 2.3           | 0.98    | 0.03      |
| QH4: Out of 520 randomly selected customer service calls (each with a unique custo...        | Fill in Multiple Blanks      | 0.6              | 45.39%     | 1267            | 1.37          | 1.15    | 0.04      |
| QG5: Assume that households spend on average \$150 per week on groceries with a sta...       | Fill in Multiple Blanks      | 0.59             | 50.6%      | 1267            | 2.03          | 1.72    | 0.05      |
| QH2: In an SRS of 625 Canadian university students, 125 reported being in a romant...        | Fill in Multiple Blanks (QS) | 0.55             | 68.47%     | 1267            | 1.37          | 0.84    | 0.03      |
| ● QE Regr2: The intercept of the estimated regression line that relates the response vari... | Multiple Choice              | 0.43             | 88.01%     | 1267            | 1.77          | 0.66    | 0.02      |
| QC4: The following boxplots show weights (in grams) of broccoli from three differe...        | Jumbled Sentence             | 0.43             | 77.37%     | 1267            | 3.1           | 0.8     | 0.03      |
| ● QE Regr: The following information is used for the next 6 questions. Young adults are...   | Multiple Choice              | 0.42             | 91.09%     | 1267            | 1.83          | 0.58    | 0.02      |
| QJ4b: After the great economic boom of 2017, a confidence interval for the mean sal...       | Multiple Choice              | 0.42             | 68.04%     | 1267            | 0.69          | 0.47    | 0.02      |







# blprod05.lms.it.ubc.ca: CPU utilization (6h)

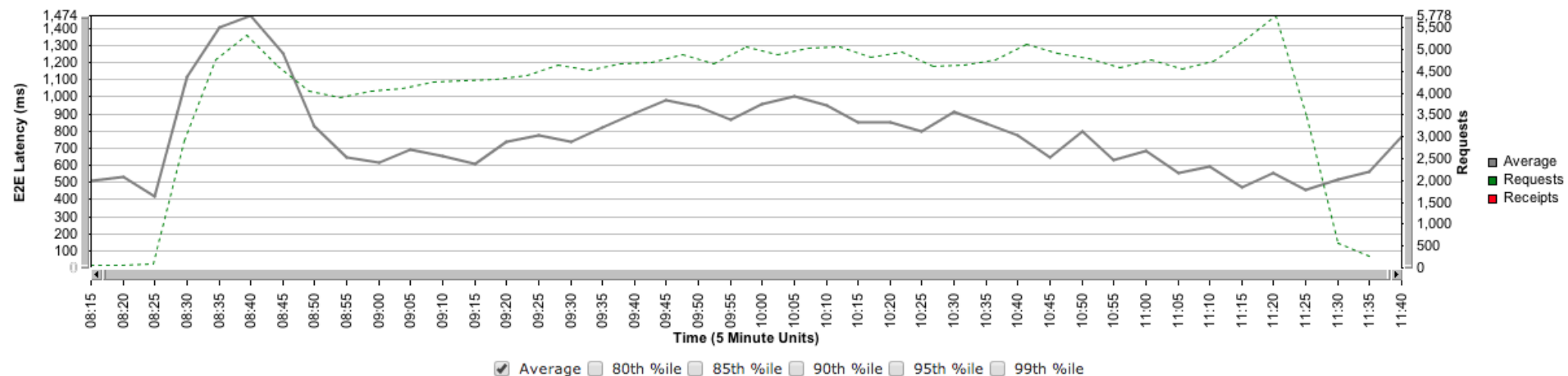


|   |       | last    | min      | avg     | max     |
|---|-------|---------|----------|---------|---------|
| <input type="checkbox"/> CPU idle time            | [avg] | 69.96 % | 50.73 %  | 77.47 % | 98.4 %  |
| <input checked="" type="checkbox"/> CPU user time | [avg] | 27.57 % | 1.24 %   | 20.56 % | 46.78 % |
| <input type="checkbox"/> CPU system time          | [avg] | 1.4 %   | 0.31 %   | 1.14 %  | 2.06 %  |
| <input type="checkbox"/> CPU iowait time          | [avg] | 0.04 %  | 0.0041 % | 0.03 %  | 0.42 %  |
| <input type="checkbox"/> CPU nice time            | [avg] | 0 %     | 0 %      | 0 %     | 0 %     |
| <input type="checkbox"/> CPU interrupt time       | [avg] | 0.14 %  | 0 %      | 0.11 %  | 0.2 %   |
| <input type="checkbox"/> CPU softirq time         | [avg] | 0.88 %  | 0.04 %   | 0.64 %  | 1.6 %   |
| <input type="checkbox"/> CPU steal time           | [avg] | 0 %     | 0 %      | 0 %     | 0 %     |

## Report for End-to-End Latency on Connect - Assessment Save Attempts

Apr 12 2014 08:15 GMT-07:00 - Apr 12 2014 11:45 GMT-07:00

[Browse Data](#) [Export Data](#)



☒ Average ☐ 80th %ile ☐ 85th %ile ☐ 90th %ile ☐ 95th %ile ☐ 99th %ile

### End-to-End Latency summary for entire period (ms)

| Requests | Receipts | Minimum | Mode   | Average  | Normalized Average | Std Dev  | 80 %ile | 85 %ile | 90 %ile | 95 %ile | 99 %ile   | Maximum   |
|----------|----------|---------|--------|----------|--------------------|----------|---------|---------|---------|---------|-----------|-----------|
| 171870   | 0        | 0 ms    | 175 ms | 808.6 ms | 249 ms             | 5.5 secs | 413 ms  | 508 ms  | 604 ms  | 699 ms  | 39.5 secs | 56.1 secs |





Home





# FINAL EXAM INSTRUCTIONS

- ✓ Connect to wireless using ubcsecure (RECOMMENDED)
- ✓ Close all applications & launch a **pre-tested browser** (Firefox, Safari, Chrome recommended)
- ✓ **Login to connect.ubc.ca** and click on the **Final Exam** link on the left hand Nav Bar
- ✓ Click on the Final Exam folder, then the Final Exam link until you are prompted for a **password**
- ✓ Sign the **cover sheet**
- ✓ To improve wireless performance for everyone, **TURN OFF** your phone!

## DURING THE EXAM:

- ➔ We suggest closely monitoring auto-save, and manually saving answers when appropriate
- 🌀 Saving of questions is ALWAYS students' responsibility
- 🌀 Exam will auto-save when moving from one question to the next
- ➔ Do **NOT** click the **Save and Submit** button at the end of the questions until you have answered ALL of the questions
- ➔ Click on "Question Completion Status" to access question navigation panel – you are allowed to move ahead and jump back to previous questions during the exam.
- ➔ We highly recommend that students submit exams manually prior to timer reaching "0"
- ➔ If you have a technical issue, raise your hand and someone will come to assist you
  - ➔ **REMEMBER:**
    - Do not communicate with other students

TIME: XXX minutes

TOTAL MARKS: XXX

|                    |                |
|--------------------|----------------|
| <b>Full Name:</b>  |                |
| <b>Student No:</b> |                |
| <b>Course:</b>     | <b>COMMXXX</b> |
| <b>Section #:</b>  |                |

1. The only electronic devices that are permitted in the exam are a laptop and a non-programmable calculator. No cell phones, smartphones, secondary tablets, electronic dictionaries or other such devices are permitted.
2. Point-form answers are acceptable.
3. You may use the back side of this page for notes during the exam. It WILL NOT BE GRADED. However, you MUST hand in this page before leaving the exam room.
4. Candidates are not permitted to ask questions of the invigilators, except in cases of supposed errors or ambiguities in examination questions.
5. Academic integrity is expected. Candidates guilty of the following, or similar, dishonest practices shall be immediately dismissed from the examination and shall be liable to disciplinary action:
  - a. Speaking or communicating in any way with other candidates
  - b. Purposely leaving the exam screen to go to another website or document on the candidate's computer.
  - c. Taking screen shots or screen recordings of anything on their laptop screen.
  - d. Purposely exposing the screen to view of other candidates. The plea of accident or forgetfulness shall not be received.

**Please sign below to indicate that you understand the above rules and will abide by them.**


Signature: \_\_\_\_\_

Date signed: \_\_\_\_\_



## INVIGILATORS' NOTES

### About the Exam:

1. Students will be given access to the Exam Folder in their Course in UBC Connect 20 minutes before the exam. They will be given access to the exam itself 10 minutes before the exam, however, they must have a password to begin the exam. Invigilators must reveal the password (printed in large numbers on paper) using the Doc Cam and show it on screen at the exact time the exam begins.
2. Students should ONLY click the "Save and Submit" button on the last question of the exam once they have completed all questions.
3. Student can change their answers right up until the end of the exam period or until they click "Save and Submit".
4. Students should click on the link "Question Completion Status" to enable a drop-down view of all questions. They can then navigate from one question to another in any order by clicking on the numbered boxes (see screenshot). Once they enter an answer in a question, it is automatically saved when they move to another question.
5. When the student's timer finishes, the exam is automatically submitted to UBC Connect, regardless of whether all questions are completed.

### BEFORE the exam

1. Make sure students' phones are OFF and so is your own
2. Instruct all students to connect to ubcsecure, login to connect.ubc.ca, click on their course and find the exam folder (Learning Services will provide a screenshot of how to access exam and show it on screen).
3. Remind everyone to sign the sign-in sheets.

### DURING the exam:

1. Please walk around the room and pay attention to students who require help
2. Ensure students do not communicate with each other
  3. Make sure students do not use the internet / their laptops for any purposes other than the exam.  
This includes using keyboard commands to take screen shots of their screen, opening new tabs, and opening any other windows other than the exam window.
4. Remove unused sign-in sheets
5. Do not answer any questions regarding the content of the exam
6. Ensure NO student leaves the exam room without handing in their signed paper
7. If students finish early before the official end time of the exam, write the time they left on their signed exam paper.  
**Please Note:** Students are not allowed to leave the room for the last 15 minutes of the exam.

### Technical Troubleshooting Steps:

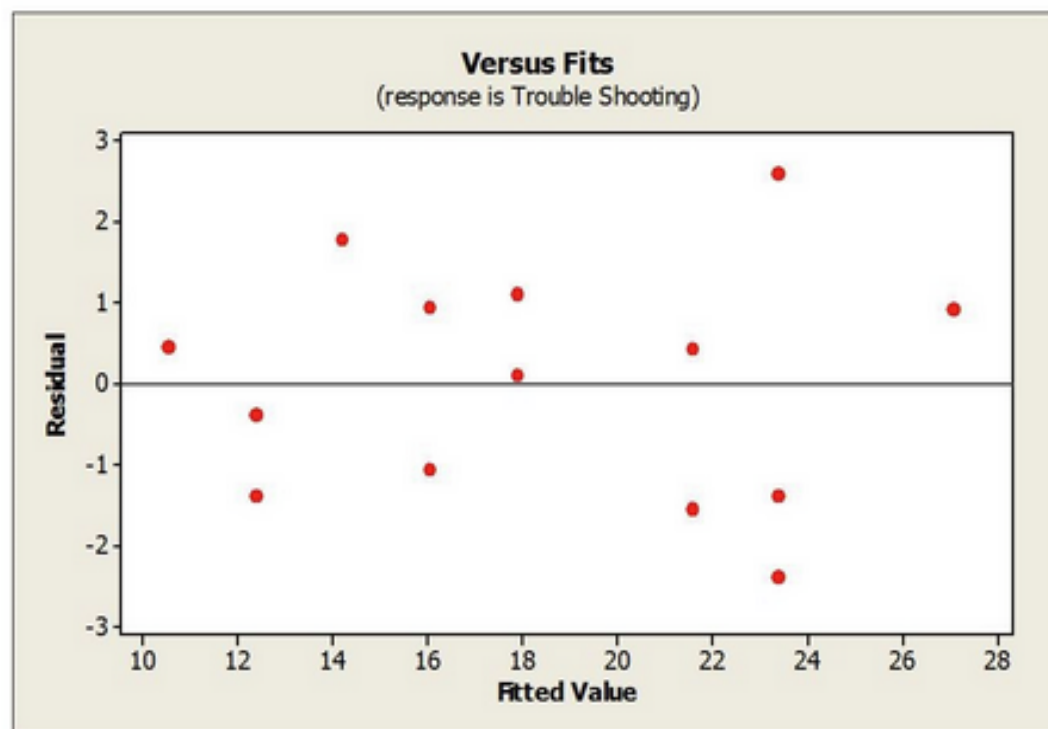
In the event that a student laptop crashes, the screen freezes or they get logged out of their wireless connection, follow these steps:

1. Disable and Enable wireless connection
2. Close and Restart Browser
  - a. Alternatively, use another browser if available
3. Log back onto UBC Connect by going to connect.ubc.ca
4. If all else fails, have student restart computer, restart browser and log back into Connect again.
5. In the worst case where a laptop is no longer functioning, escort the student to the designated computer lab for them to finish the exam there.

**Question Group G. (Total 10 marks) "Shoot! There's trouble ahead!"**

**Note:** The scatterplot and output are provided in hard copy with your sign-up sheet.

From the residual plot below we can say that:



- ☐ The linearity condition is not satisfied
- ☐ The independence assumption is not satisfied
- ☐ The nearly normal condition is satisfied
- ☐ The nearly normal condition is not satisfied
- ☐ The equal spread condition is satisfied

**PART 3 (Total 14 marks): “Spring into these summary questions”**

Here is the five number summary of the hourly wages (\$) for sales managers.

|       |       |        |       |       |
|-------|-------|--------|-------|-------|
| Min   | Q1    | Median | Q3    | Max   |
| 20.94 | 37.64 | 44.77  | 49.24 | 67.11 |

(i) The shape of this distribution is best described as:

- A. Symmetric
- B. Skewed to the right
- C. Skewed to the left
- D. Not enough information to tell

Your answer (write only the letter code A, B, C or D):

(ii) The IQR for these data is:

(iii) Compute the lower and upper inner fences:

Lower inner fence:

Upper inner fence:

(iv) Are there any outliers, as defined by the “inner fences” criterion?

- A. Yes, only on the left side of the distribution
- B. Yes, only on the right side of the distribution
- C. Yes, on both sides of the distribution
- D. No

Your answer (write only the letter code A, B, C or D):

(v) Suppose there had been an error and that the lowest hourly wage for sales managers was \$18.50 instead of \$20.94. Indicate whether how this change would affect the following summary statistics. Write only the letter code **I (increase)**, **D (decrease)** or **S (stay about the same)**:

- A. Mean
- B. Median
- C. Range
- D. IQR



The requirement for this query is to list the customers who have purchased a product named "Red velvet cupcakes" before December 2013. (NOTE: The date is stored in dd/mm/yyyy format.) The query should list the customers' name, product name, quantity ordered and product price.

query1

Customer

\*

Customer ID

First Name

Last Name

Address

Neighbourhood

Order

\*

Product

Customer

Order Date

Quantity

Products

\*

Product ID

Product Name

Price

Baker

Health Rating

Recipe

\*

Ingredient

Product

Quantity

Instructions

Field:

First Name

Last Name

Price

A

C

F

Table:

Customer

Customer

Products

B

D

G

Sort:

Show:

☒

☒

☒

☒

☒

☐

Criteria:

E

H

or:

Please complete this query by filling in the blank shown in the boxes above.

(Note: The answers are not case-sensitive.)

- A.
- B.
- C.
- D.
- E.
- F.
- G.
- H.

**1. Unit 4 Lesson 6 - Assignment #1** (Points: 10)

See the attached document ([Process for Completing the Lab Assignment](#)) for detailed instructions.

Record your answers in the table below; **do not leave any cells empty**:

- write a hyphen ("-") in cells that do not require any content
- write an "x" to indicate no errors

| Patient Name | Medication | No Error | Wrong Patient   | Wrong Doctor   | Wrong Drug  | Wrong Dosage Form / Wrong Route  | Wrong Strength/Dose/Wrong Quantity   |   | Patient aller |
|--------------|------------|----------|---|--|---|--|--|---|---------------|
|              |            |          | Incorrect: patient name, floor, bed/room number, or patient ID number on either the prescription label or MAR label | Incorrect: prescriber name on either the prescription label or MAR label | Incorrect: drug (chemical) or brand dispensed as per the product bottle, prescription label, or MAR label | Incorrect: dosage form dispensed as per the product bottle, prescription label, or MAR label; Incorrect route of administration on label | Incorrect: strength, dose calculation, dose direction, dose interval/frequency | Incorrect: quantity dispensed including refills (if applicable) |               |
|              |            |          |   |  |   |  |  |   |               |
|              |            |          |   |  |   |  |  |   |               |
|              |            |          |   |  |   |  |  |   |               |
|              |            |          |   |  |   |  |  |   |               |
|              |            |          |   |  |   |  |  |   |               |
|              |            |          |   |  |   |  |  |   |               |

Save Answer

Home



Home





**'Tis but a scratch!**



Home

