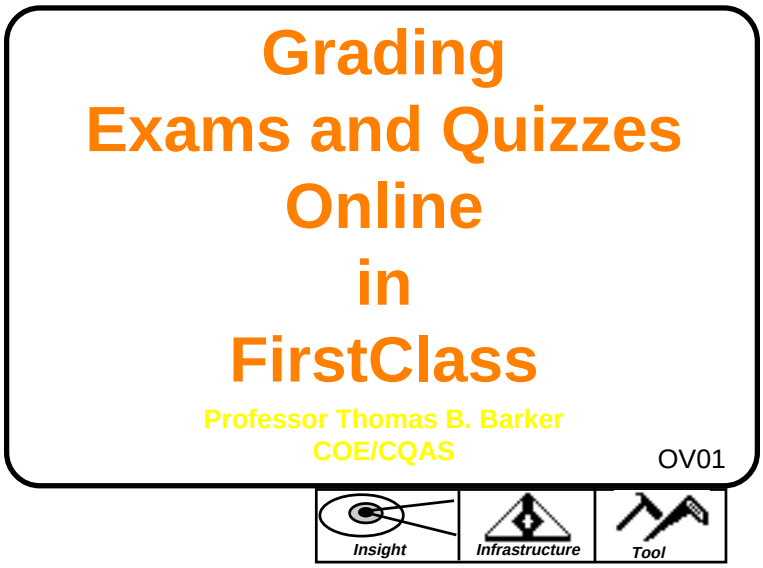
Purpose of this segment:

In this segment we will consider the motivation for frequent and immediate feedback to students based on conventional testing instruments. We will also point out the possible vulnerability of such an approach to cheating and dishonesty.



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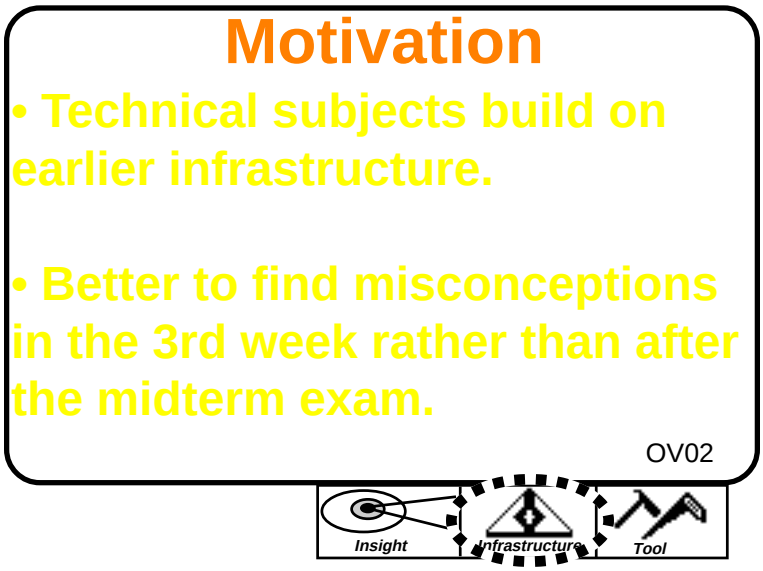

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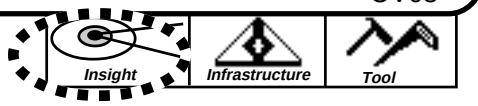
Can you think of any additional motivational reasons?

OV03



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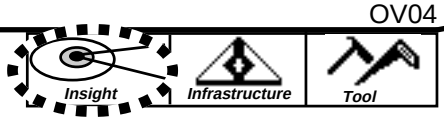
Alternative: Proctored Exams

- Great support by Distance Learning.
- "Usual" approach.
- Up to 2 weeks delay in feedback.

OV04



Space For Your Notes

Non-Proctored Problem

- Students can easily cheat.
  - More prevalent in UG.

My experience is with mature, Graduate Students.

OV05

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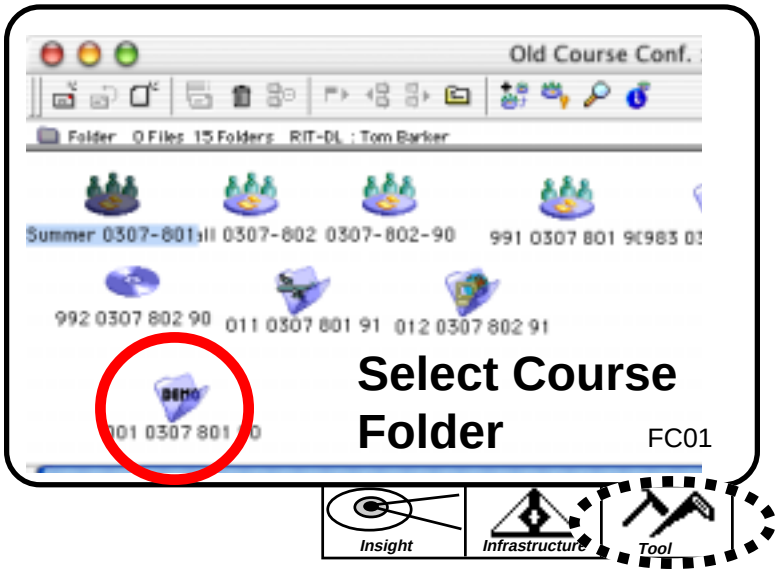
Grading Exams and Quizzes Online in FirstClass



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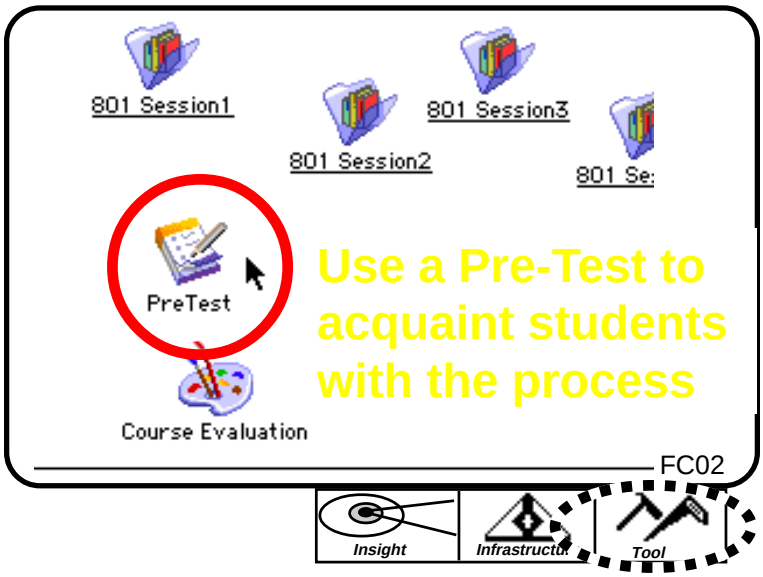

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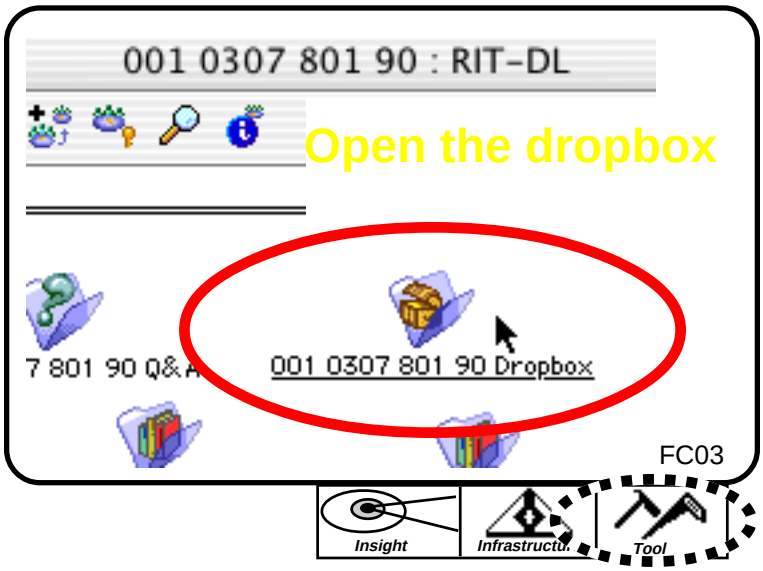

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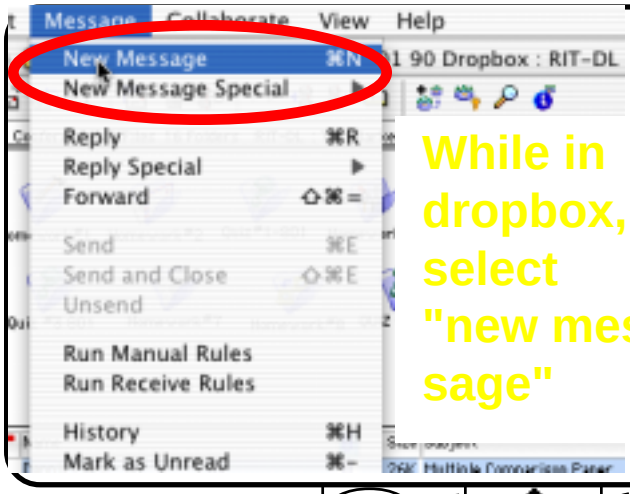
Grading Exams and Quizzes Online in FirstClass



FC04

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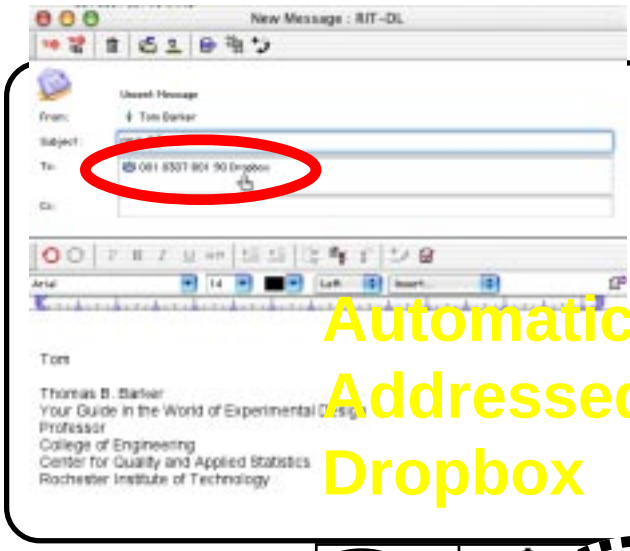


FC05

Space For Your Notes

Don't send this message!

Copy the Quiz from your word processor.

FC06

Space For Your Notes

801

October 22,2002 Quiz #5 Name_____

Please use First Class to send this quiz to the drop box (this quiz is automatically addessed to that conference) by Noon (EDT) on Wed., October 23, 2002

1) Why do we use blocking in experimental design? {2}

1.

2.

2) If we did not remove the blocked effect from the residual sum of squares, then the sensitivity of the experiment would be_____. {.5}

3) If we have no replicates in an experiment with two or more factors, where does the resisual come from? Be specific about a two factor experiment with no replicates. {.5}

4) Why is the correlation coefficient a better measure of the relationship between variables
than the covariance? {1}

5) Compute the covariance of the following 3 pairs of data: {2}

x	y
2	8
4	4
8	2

6) Compute the corelation coefficient for the data in question #5. {1}

7) The fllowing measurements were made by 5 different operators using the same micrometer and on the same standards that were supplied by NIST. Is there a statistically significant difference between the two standards? Use a 5% alpha risk level. {1}

	Standard A	Standard B	difference
Operator #1	1.5	1.6	-0.1
Operator #2	1.8	1.7	0.1
Operator #3	1.3	1.5	-0.2
Operator #4	1.9	2.1	-0.2
Operator #5	1.1	0.9	0.2

Xbar(A)= 1.52 Xbar(B)= 1.56 dbar= -0.04

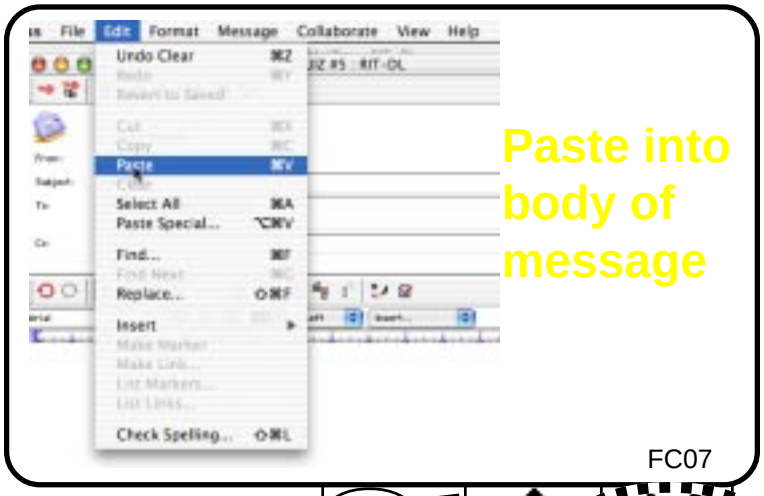
s(A) = 0.335 s(B)= 0.434 s sub d= 0.182

State hypotheses:

8) State the probabilities of the type I and type II errors when you have made your decision in the above experiment (#7). {2}

Type I:_____ Type II:_____

Grading Exams and Quizzes Online in FirstClass



FC07

Insight | Infrastructure | Tool

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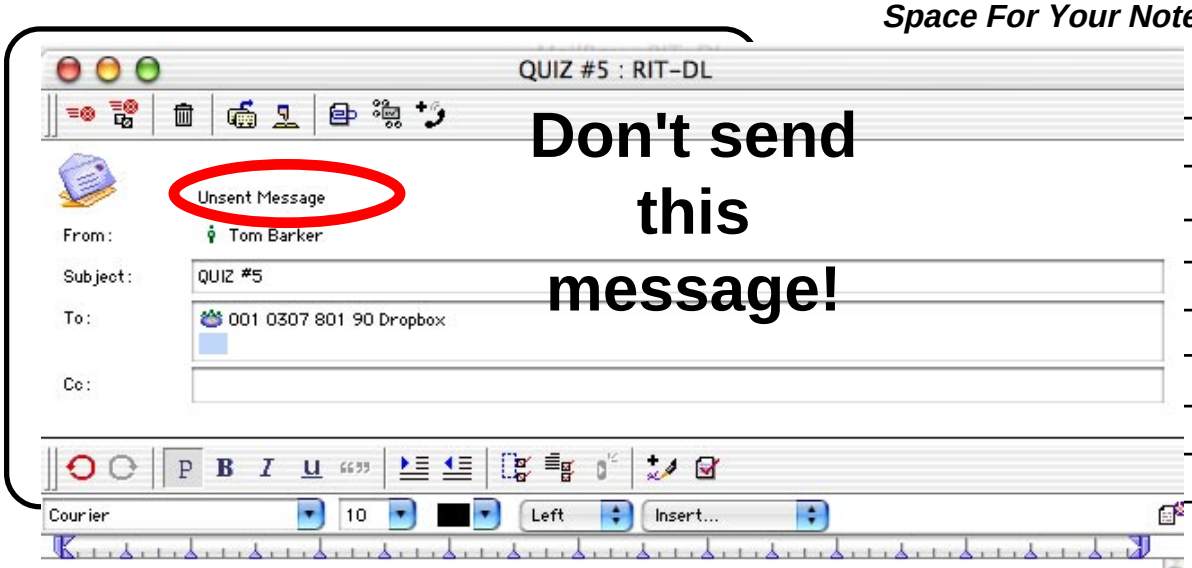

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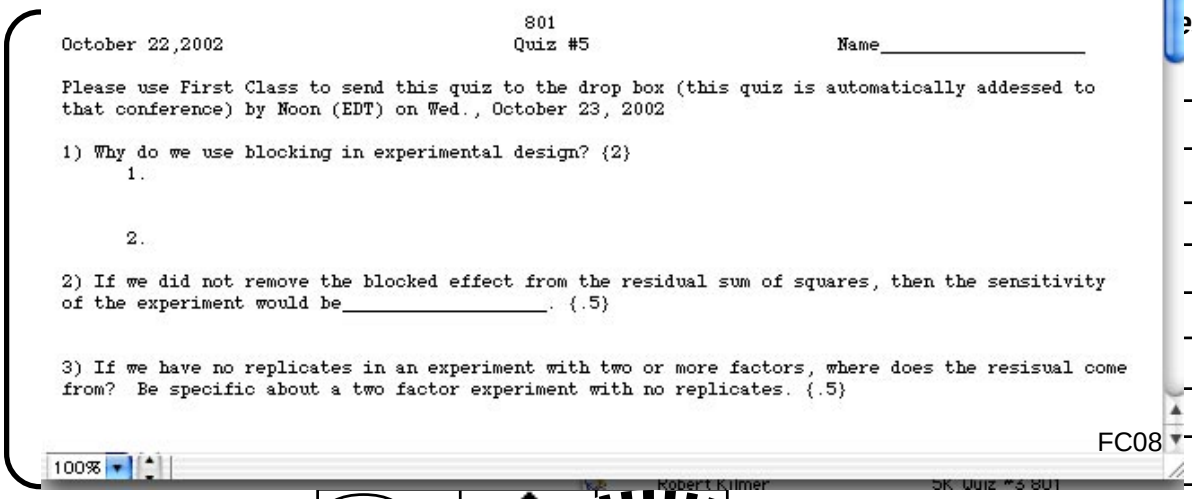


801

October 22,2002 Quiz #5 Name_____

Please use First Class to send this quiz to the drop box (this quiz is automatically addessed to that conference) by Noon (EDT) on Wed., October 23, 2002

1) Why do we use blocking in experimental design? {2}

1.

2.

2) If we did not remove the blocked effect from the residual sum of squares, then the sensitivity of the experiment would be_____. {.5}

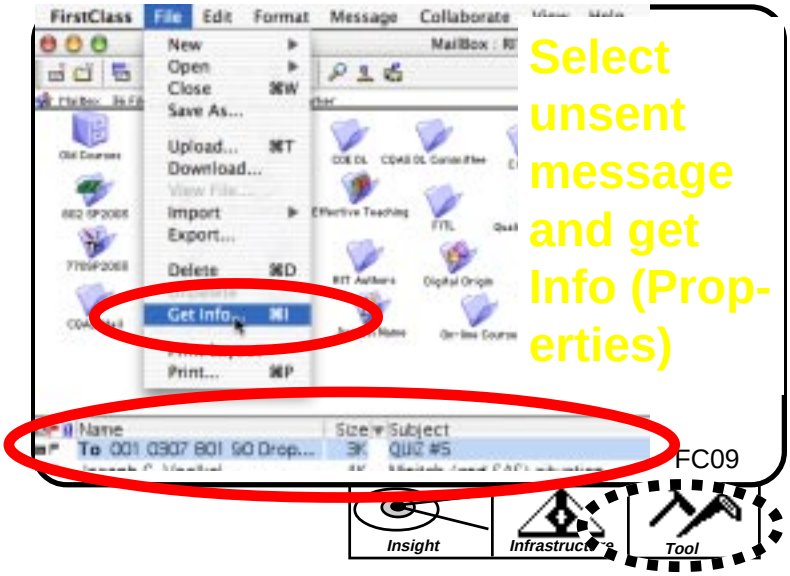
3) If we have no replicates in an experiment with two or more factors, where does the resisual come from? Be specific about a two factor experiment with no replicates. {.5}

100%

FC08

Insight | Infrastructure | Tool

Grading Exams and Quizzes Online in FirstClass

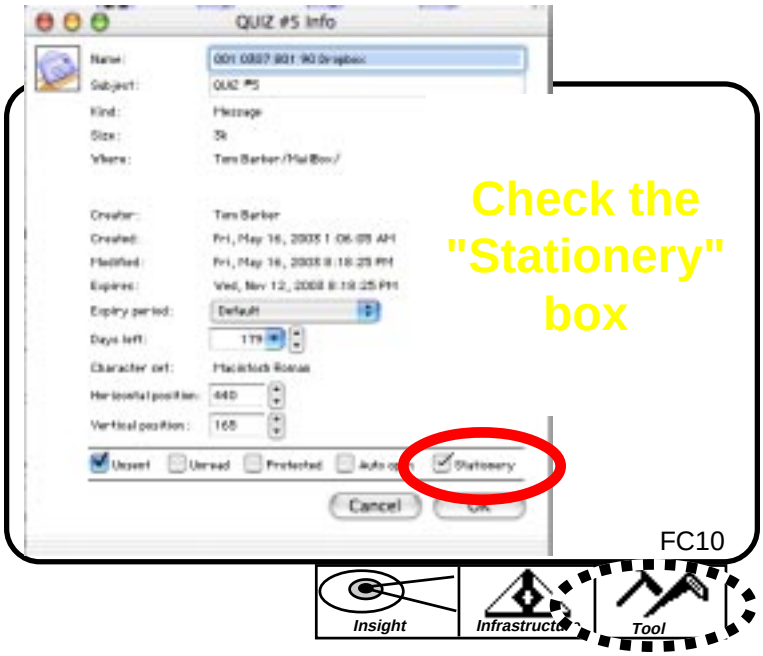


Select unsent message and get Info (Prop-erties)

FC09

Insight | Infrastructure | Tool

Space For Your Notes

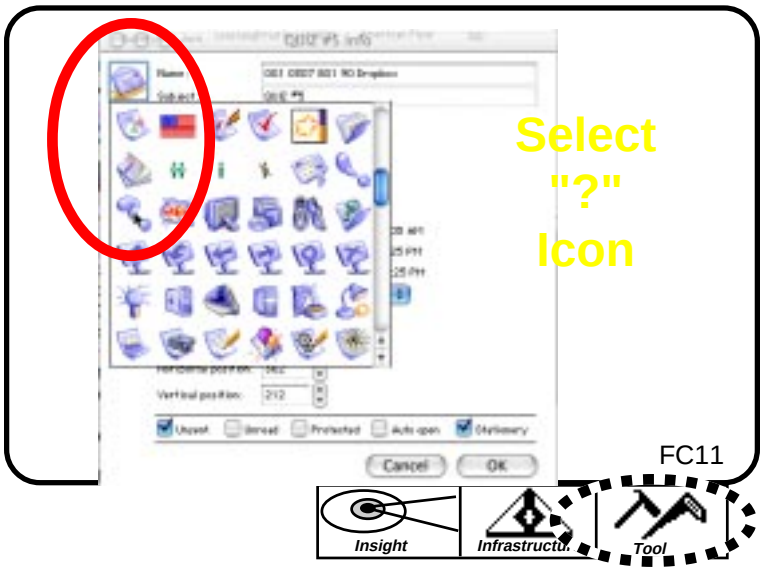


Check the "Stationery" box

FC10

Insight | Infrastructure | Tool

Space For Your Notes



Select "?" Icon

FC11

Insight | Infrastructure | Tool

Space For Your Notes

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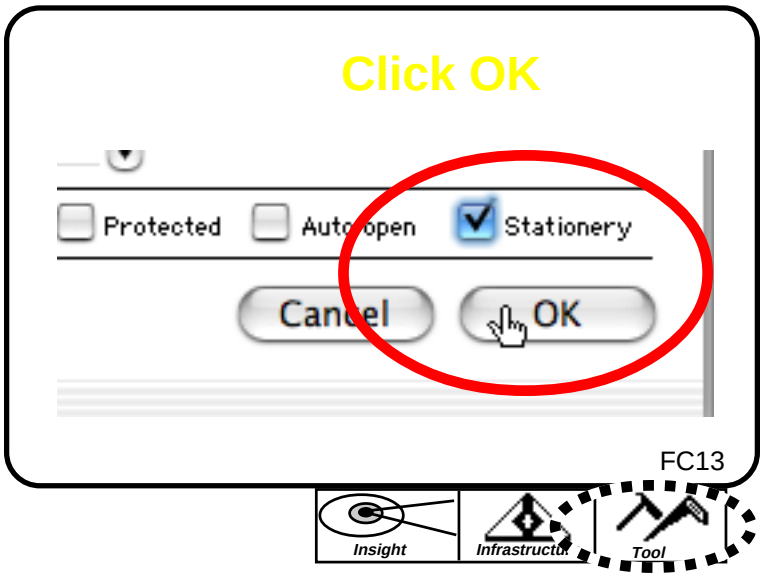

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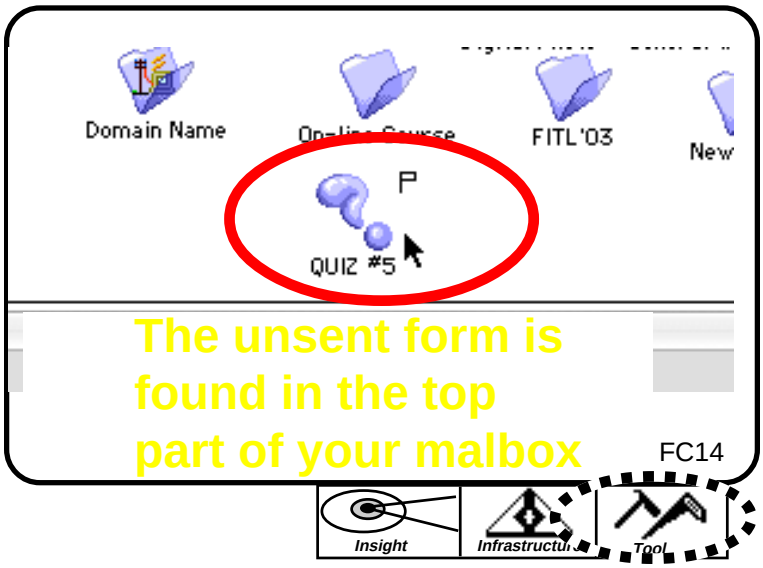

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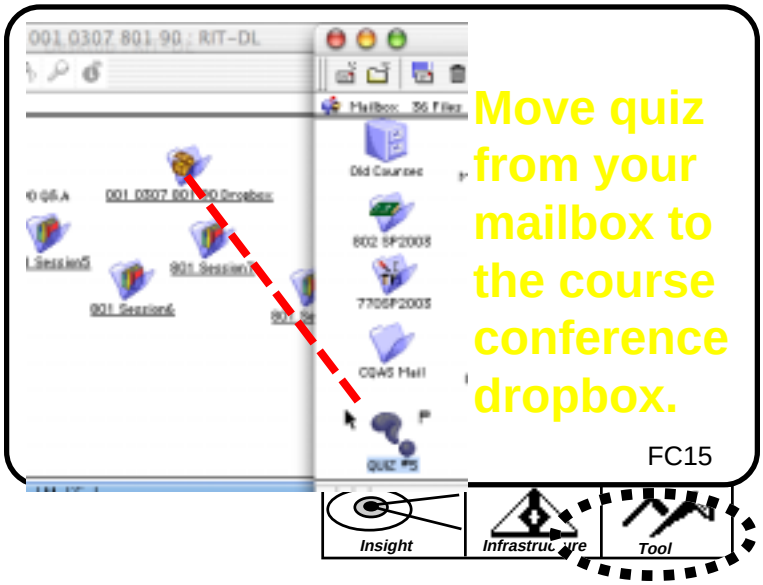
Grading Exams and Quizzes Online in FirstClass



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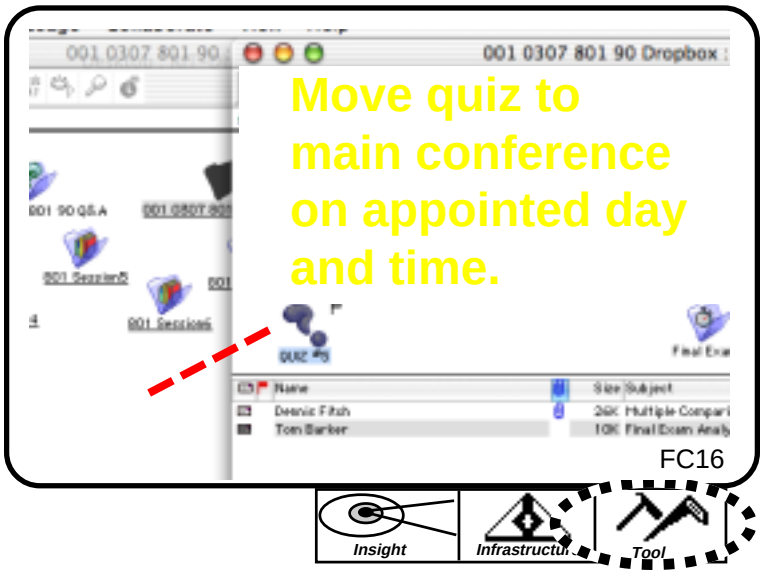

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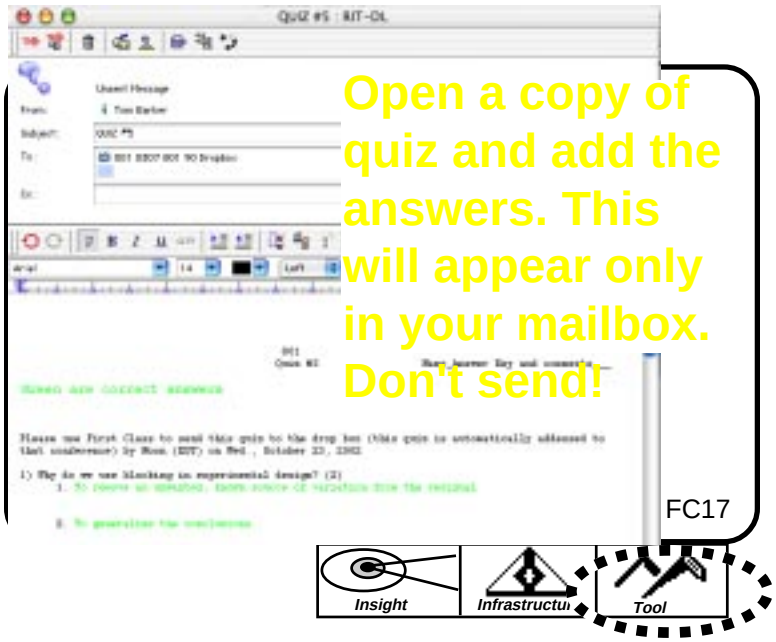


Space For Your Notes

801
Quiz #3 **Name_Answer Key and comments___**

Green are correct answers

Please use First Class to send this quiz to the drop box (this quiz is automatically addessed to that conference) by Noon (EDT) on Wed., October 23, 2002

1) Why do we use blocking in experimental design? {2}

1. To remove an unwanted, known source of variation from the residual
2. To generalize the conclusions.

2) If we did not remove the blocked effect from the residual sum of squares, then the sensitivity of the experiment would be Decreased. {.5}

3) If we have no replicates in an experiment with two or more factors, where does the resisual come from? Be specific about a two factor experiment with no replicates. {.5}

The residual is made up of the variation due to unknown effects (pure error) and the interaction. With 2 factors, the AB interaction would be part of the residual.

4) Why is the correlation coefficient a better measure of the relationship between variables than the covariance? {1}

The correlation coefficient is anchored (referenced) between -1 and +1 and its magnitude depends only on the relationship between the and the x. The covariance's magnitude depends on the relationship as well as the size of the numerical values.

5) Compute the covariance of the following 3 pairs of data: {2}

	x	y	xy
	2	8	16
	4	4	16
	8	2	16
Sum	14	14	48

$C^{xy} = (n(\Sigma xy) - (\Sigma x)(\Sigma y))/(n(n-1))$

$C^{xy} = (3(48) - (14)(14))/(3(3-1)) = -52/6 = -8.667$

6) Compute the corelation coefficient for the data in question #5. {1}

$r= C^{xy}/((s^x)(s^y))$

$r= -8.667/((3.055)(3.055)) = -0.928$

7) The fllowing measurements were made by 5 different operators using the same micrometer and on the same standards that were supplied by NIST. Is there a statistically significant difference between the two standards? Use a 5% alpha risk level. {1}

	Standard A	Standard B	difference
Operator #1	1.5	1.6	-0.1
Operator #2	1.8	1.7	0.1
Operator #3	1.3	1.5	-0.2
Operator #4	1.9	2.1	-0.2
Operator #5	1.1	0.9	0.2

Xbar(A)= 1.52 Xbar(B)= 1.56 dbar= -0.04

s(A) = 0.335 s(B)= 0.434 s sub d= 0.182

State hypotheses: $H^0: \delta = \delta^0 = 0$

$H^A: \delta \neq \delta^0$

$\alpha = .05 \quad t^{.05/2,\ 4} = +/- 2.7764$

$t^{.05/2,\ 4} = +/- 2.7764$

$t = (d(bar) - 0)/(s^d/Sqrt(n))$

$t = (-0.04 - 0)/(0.182/Sqrt(5)) = -0.04/0.081 = -0.49$

Do not reject the null hypothesis.

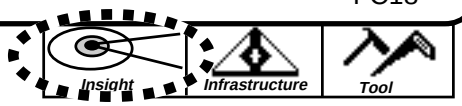
There is no evidence to indicate a difference between standards.

8) State the probabilities of the type I and type II errors when you have made your decision in the above experiment (#7). {2} assume d=s then D=1. By going to Table 3 in the QED book, the beta risk is >50%

Type I:____Zero_____ Type II:____>50%__To calculate this error, assume d=s and then D=1. Go to Table 3 in the QED book and locate the D=1 row. Go to the alpha double sided risk of .05 column. You will find that a sample size of 5 (there were 5 differences) is not in the table, but if you were to continue to the left, 5 would be there and the last entry was beta=0.5, so with 5 observations, beta must be greater than 0.5.

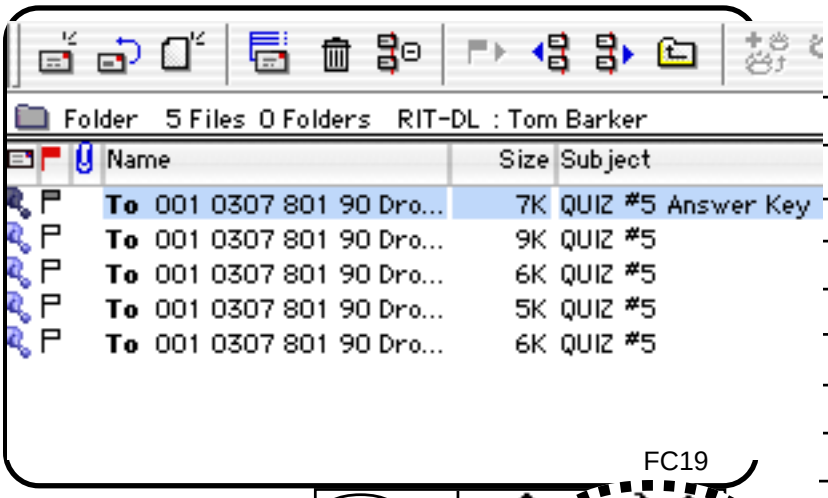
Students will submit their completed Quizzes.
The Quizzes will automatically be sent to the dropbox.

FC18



Space For Your Notes

Space For Your Notes



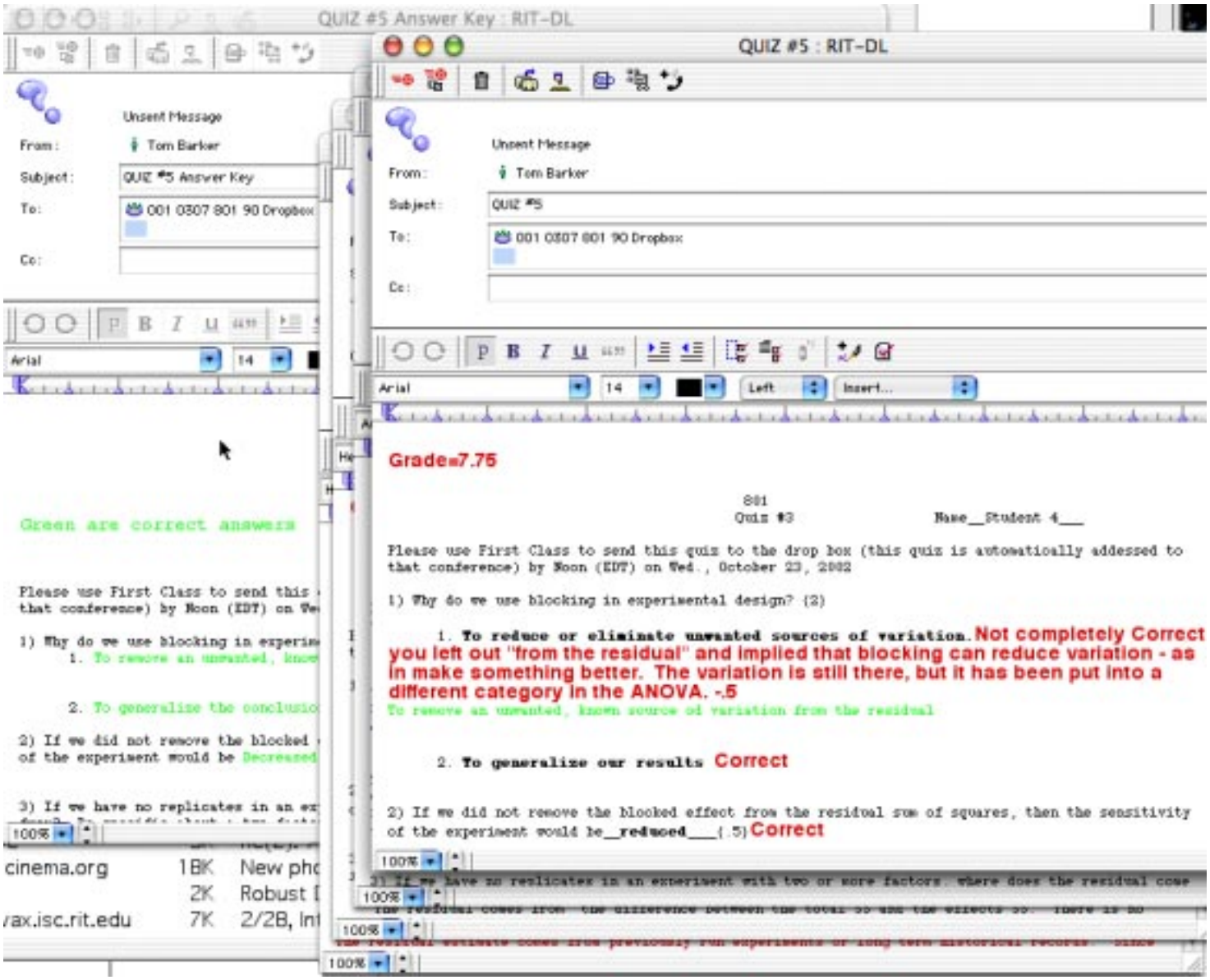
FC19

Space For Your Notes

Open up to 5 of the completed Quizzes at a time and begin the grading process.

FC20

Space For Your Notes



Grade one question at a time.
This prevents bias *and* makes the process easier.

FC21

Space For Your Notes

Copy the correct answers(in Red) into the student's quiz. Copy the incorrect (in blue)answer into the Answer key.

FC22

Space For Your Notes

Advantages:

- Rapid replies to students.
- Complete feedback.
- Reinforces learning
- Allows for planned teaching reinforcement.

FC23

Space For Your Notes

What you have learned:

You have seen how to set up an on-line quiz using the "stationery" form in FirstClass. This form can be completed by the students and the quiz can be graded on line with correct answers inserted into the student's quiz. The answer key then becomes a form of feedback to the entire class with both the correct answers as well as the misconceptions by the students. This builds a reinforcing effort (based on "we learn from our mistakes") for the class and thus furthers the learning process.