UBC ISCI 422
Final Exam
April 24, 2006

Instructions:

1. Do not open this test until told to do so.
2. This test is closed book. You may NOT bring any material in with you.
3. Print your name and student number on ALL pages.
4. You may use a booklet for workspace but enter your answers within the space provided. Do not enter answers on page-backs.
5. Print or write neatly.
6. At the completion of the exam hand in your answers and all ancillary material.
7. Except where explicitly stated, you may write in paragraph or point form.
8. Point values for each question are indicated in the margins.

Marks:

Question	1	2	3	4	TOTAL
Mark					
Max	15	15	30	40	100

First Name: _____

Last Name: _____

Student Number: _____

/ 5 1. (a) Define *science* in one brief sentence.

/ 10 (b) Explain your definition.

/ 5 2. (a) Define *scientific model* in one brief sentence.

/ 10 (b) Explain your definition.

3. Choose one of the articles listed below and deconstruct the model it contains.

(a) Indicate which article you selected.

[Cell Biology]	???
[Ecology]	???
[Sociology]	???

/ 3 (b) What scientific questions does the article raise?

/ 3 (c) Give a brief outline of the model used to address the question.

/ 8 (d) What theories and assumptions are incorporated in the model?

/ 8 (e) How appropriate is each of the assumptions?

/ 4 (f) What predictions or hypotheses does the model generate?

/ 4 (g) Can the predictions be independently verified? How?

4. The articles listed below raise questions of recent scientific interest. Choose <u>one</u> and construct a model that addresses one of these questions.

   (a) Indicate which article you selected.

[Evolution]	???
[Epidemiology]	???
[Neuroscience]	???

/ 4 (b) What is the scientific question you intend to address? (Suggestion: choose your question carefully. It will be crucial to your success on the remaining questions.)

/ 15

(c) Construct a schematic representation that clearly and simply conveys the underlying processes and/or logic of your model. (Eg. flow chart, mind map, or block diagram.) Explain your model with reference to your schematic. (Suggestion: practice in the workspace booklet provided then draw the final version here.)

/ 7 (d) What data or information will you need to collect to finalize your model?

/ 7 (e) What assumptions will you incorporate into the model? How can you justify them?

/ 7 (f) What predictions do you anticipate your model will generate? How would you verify the model's predictions?

END OF EXAM