# CMPUT 301 – User Interfaces and Software Design
## Midterm Examination – February 11, 2000
### Section B1  E. Stroulia

## OO Design (40%)

- (15%) Abstract classes vs. interfaces: explain and compare (identify similarities and differences between) the two concepts. What kind of reuse does each support (design vs. code)?

- (15%) *"XYZ Bank offers two types of accounts to its customers: Checking and Savings accounts. Access to checking accounts (i.e., deposits, or withdrawals) is unlimited as long as the account balance is positive. Similarly, there are no restrictions in how often deposits can be made to a savings account. However, to withdraw money from a savings account, one has to notify the bank at least 24 hours before the time of the withdrawal."*

  Design a class diagram to describe the above case; explain your decisions re: classes and inheritance relations among them.

- (10%) Given the following class definitions what will happen when the pieces of code (a) and (b) are executed? Explain the concept of "dynamic binding" in terms of the example below.

```
abstract class Animal {
    void breath() { ... };
    abstract void talk();}
class Cat extends Animal {
    void talk() {
    System.out.println("Meow...");}}
```

```
(a)Animal myPet = new Animal;
myPet.talk;
(b)Animal myPet;
myPet = new Cat;
myPet.talk;
```

## Process (10%)

- (10%) What are the four different levels in the waterfall life cycle model? Describe the objectives of each one in one or two sentences.

## User–Interface Design (50%)

- (20%) What are the different interaction styles? Describe in one or two sentences the advantages of each one.

- (15%) Error prevention by completing plan sequences: explain the principle and give an example.

- (15%) You are commissioned to design a Web site for an international firm. Discuss some of the issues that you have to consider, related to the international, multicultural nature of the site's users.