Name:________________________

Ag and Applied Econ 322

Final Examination

(May 9, 2005)

<u>Part I. Multiple Choice Questions:</u> (Circle the letter associated with the best answer. Each question is worth 2 points.)

1) If I expect the futures market will go lower, I could profit by:
   a) Selling a put option.
   b) Selling a call option.
   c) Putting on a short straddle.
   d) Using a horizontal option spread.

2) An ethanol plant buys corn. They build one in my area. I should expect:
   a) The basis for corn to get stronger.
   b) The basis for corn to get weaker.
   c) Corn futures prices to increase.
   d) There is not enough information to answer.

3) Futures prices are $3.00 today. I sell a call option with a strike price of $3.10, and tomorrow the futures price is $3.20. This means:
   a) I am making a profit.
   b) Price volatility has increased.
   c) I have to buy a futures contract for $3.10.
   d) I have to make a margin call.

4) All options have intrinsic value.
   a) True.
   b) False.

5) A 20 year bond with two coupon payments a year has a par value of $100,000. Its current price is $95,000. This means:
   a) The interest used for the coupon payment is less than the current market interest rate.
   b) The market interest rate is 5 percent.
   c) This bond would never trade for this price.
   d) The interest used for the coupon payment is more than the current market interest rate.

6) Basis contracts have no price risk.
   a) True
   b) False

7) If the initial margin on a futures contract I have sold increases, it likely means:

a) The market has gotten less liquid.
b) I am not making money in my futures positions.
c) Prices have gotten more volatile.
d) The margins never change once you have a futures position

8) I expect the Canadian Dollar to get weaker relative to the British Pound. I could take advantage of this on a US exchange by:

a) Selling British Pounds.
b) Selling British Pounds and Buying Canadian Dollars.
c) Buying British Pounds and Selling Canadian Dollars.
d) Selling Canadian Dollars.

9) I am a buyer in the cash market. If basis ends up stronger than I expected:

a) I will pay less than I expected.
b) Basis will not change once I hedge.
c) What I pay will depend on whether futures prices went up or down.
d) I will pay more than I expected.

10) If I sell a covered call option, it means:

a) I bought a futures contract earlier.
b) I sold a futures contract earlier.
c) I sold a put option earlier.
d) I bought a call option earlier.

11) The current price of a 90-day T-bill contract is 94. Yesterday it was 94.5 This means interest rates have:

a) Gone down.
b) Gone up.
c) Become less than the coupon rate.
d) We can't tell without knowing the coupon rate.

12) There is no basis risk in an interest rate hedge for April expiration.

a) True.
b) False.

13) I sell wheat futures on the Chicago Exchange and buy wheat futures on the Kansas City Exchange. This is an example of:

a) A geography spread.
b) A derived demand spread.
c) A calendar spread.
d) A quality spread.

14) If I have a long options straddle I have limited risk and unlimited profit opportunities.

- **a) True**
- b) False

15) A vertical option spread is an options equivalent to a substitute spread in the futures market.

- a) True.
- **b) False.**

16) If the market is at full carry, then the best way to profit from a change in relative prices is:

- **a) By the nearby and sell a deferred contract.**
- b) Sell the nearby and buy a deferred contract.
- c) If the market is at full carry relative prices can't change.
- d) It depends on what commodity we a re talking about.

17) What would you do to create a synthetic long position?

Buy call option and sell a put option for the same commodity and delivery period

18) An options strategy with limited risk and limited profits is:

- **a) A bear put spread.**
- b) A short straddle.
- c) Thee is no such thing.
- d) A covered call option.

19) A yield curve with a negative slope implies:

- a) Money will be less valuable in the future.
- b) Futures prices for interest rate contracts are expected to fall.
- c) **Money will be more valuable in the future**.
- d) Futures prices for interest rate contracts are expected to rise.

20) What is the difference between the initial margin and the maintenance margin?

The initial margin is the amount of money that must be deposited to initiate a futures position. The maintenance margin is the lowest value a futures margin account can go to before a margin call is initiated.

21) I sell a 90-Day T-bill futures contract and buy a 15 year T-bond futures contract for the same delivery month. This means:

- a) I think the yield curve is too flat.
- b) **I think the yield curve is too steep**.
- c) This trade has nothing to do with the yield curve.

22) Give an example of a derived demand spread.

Buy (sell) a feeder cattle contract and sell (buy) a live cattle futures contract.

23) If I expect the basis to get weaker, I would want to hold inventory.

a) True.
b) False.

24) Delayed price contracts get rid of price risk.

a) True.
b) False.

25) What is the most risky trade I could make in the futures/options markets?

Sell a naked option.

Part II. Use the information below to answer the following questions. Each question is worth 5 points. Write out any formulas you might use to insure partial credit should you make a math error.

The following options are for August delivery hogs. The strike prices and premiums are in dollars per 100 pounds. The current futures price is $64.45 per 100 pounds.

Calls		Puts	
strike	premium	strike	premium
$60	$6.25	$60	$1.10
$62	$4.55	$62	$2.53
$64	$3.43	$64	$2.95
$66	$2.33	$66	$4.60
$68	$1.43	$68	$5.85

1) I expect prices to go a lot higher or a lot lower depending on the results of a trade negotiation going on with Japan. If I was only willing to risk $6.38 per 100 pounds to take advantage of this expectation, what strategy would I use (be specific including which options would be used)?

A long straddle. Buy a put option and a call option, both with a $64 strike price.

2) Identify every option that has intrinsic value.

Calls (strike price)	**Puts (strike price)**
60	**66**
62	**68**
64	

3) I am going to slaughter hogs and export pork to Japan. My basis is usually -$2 per hundred pounds. I want to protect myself from higher prices. Which option would give me a lower expected purchase price than a hedge?

None of them would.

Use this information for the next two questions. The current futures price for November soybeans is $6.40. The contract is for 5000 bushels. You call a futures broker and get the following price information on November soybean options:

Calls		Puts	
strike	premium	strike	premium
$6.20	13 cents	$6.20	30 cents
$6.30	27 cents	$6.30	9 cents
$6.40	33 cents	$6.40	25 cents
$6.50	17 cents	$6.50	18 cents
$6.60	22 cents	$6.60	13 cents

4) After hanging up, you realize that the broker mixed up the premiums and strike prices. For both puts and calls, connect the strike prices with their correct premiums.

Look at the lines above.

5) I am a soybean producer. I hedge soybeans for October delivery, and my expected basis is -$.30. When October arrives, I get a net sales price of $5.95. What happened?

Basis ends up weaker than I expected.

Part III. Short Answer. (5 points each)

1) The current price of a 90-day T-bill contract is 99. It has a par value of $1,000,000. Why is there almost no risk in selling that futures contract today?

We would expect the price top go no higher than 100 (to go beyond that would require negative nominal interest rates).

2) Based on the graph below, has the US dollar gotten stronger or weaker relative to the Japanese Yen since April 1?

Weaker.

3) What is the Market Segmentation Theory of Yield Curve Formation?

There is no real relationship between varying terms to maturity. The interest rate in each time period is simply determined by the supply/demand for credit among firms whose business interests match those terms to maturity. This means that changes in returns at one maturity will have a minimal impact on returns for other maturities.

4) How could I determine basis risk in my area?

By looking at the variation in monthly basis from year to year relative to the average in a given month. The more it varies from the three or five year average, the greater basis risk.

5) Pick two marketing strategies, and list their advantages and disadvantages.

Look at the slides from Feb. 2.