ECO 301: Money and Banking **Name:** (30 points) ____________________
In-class Exercise: Measuring Interest Rates

Learning Objective: LO3: Predict changes in interest rates using fundamental economic theories including present value calculations, behavior towards risk, and supply and demand models of money and bond markets.

Directions: Work in groups of up to four people and answer the following questions. All papers will be collected, but only one member's paper will be randomly selected and graded and all members of the group will receive the same grade.

By signing below, you agree that the following work represents the efforts of everyone in the group, and you are willing to accept as your own grade for the group project the grade earned from this representation of your group's work. Every member must agree to these terms to earn a non-zero grade for this assignment.

Signature Group Member 1	Print Name	Date
Signature Group Member 2	Print Name	Date
Signature Group Member 3	Print Name	Date
Signature Group Member 4	Print Name	Date

1. (10 points) If the current interest rate is 5%, what is the present value of a coupon bond with annual coupon payments of \$100, a 10 year maturity, and a face value of \$2,500.

2. (10 points) Suppose the coupon bond in the previous problem has a price of \$2000. Write down a formula that determines the yield to maturity (but don't actually compute it). Based on your formula, is the yield to maturity greater, less than, or equal to the current interest rate, 5%. How do you know?

3. (10 points) Suppose you obtain a \$100,000 fixed payment loan today to pay for college. Suppose you have an arrangement with the bank so that you do not have to make your first payment until 3 years from now (gives you time to finish college and find a good paying career). Suppose the maturity date is 10 years from your first payment and the interest on the loan is 5%, compounded monthly. What are your monthly payments?

4. (10 points) Suppose a 30 year Treasury bond with face value \$1000 is sold for \$412.

   (a) (10 points) What is the annualized yield to maturity?

   (b) (10 points) In equilibrium, Treasury bonds are sold for a price such that the annualized yield to maturity is equal to the prevailing market interest rate for similar assets (similar risk, same present value cash flows, same maturity, etc). Suppose next year (29 years until maturity) interest rates are 2%. Is this an increase or decrease in interest rates? What will be the new price of the bond?

   (c) (10 points) In part (b) above, suppose you sold the bond at the end of the first year. What was your capital gain / loss?

   (d) (10 points) If you expect an increase in interest rates, are you more or less likely to hold long-term, fixed-interest rate, bonds? Explain.