Today:

1. General Amortization Method
2. Amortization with level payments
3. Sinking Fund Method

In Class Exercises:

1. A 20-year loan of 1000 is repaid with payments at the end of each year.
   Each of the first ten payments equals 150% of the amount of interest due. Each of the last ten payments is X
   The lender charges interest at an annual effective rate of 10%.
   Calculate X.

2. A 10-year loan of 2000 is to be repaid with payments at the end of each year. It can be repaid under the following two options:

   (i) Equal annual payments at an annual effective rate of 8.07%.
   (ii) Installments of 200 each year plus interest on the unpaid balance at an annual effective rate of i.

   The sum of the payments under option (i) equals the sum of the payments under option (ii).
   Determine i.
3. John borrows 10,000 for 10 years at an annual effective interest rate of 10%. He can repay this loan using the amortization method with payments of 1,627.45 at the end of each year. Instead, John repays the 10,000 using a sinking fund that pays an annual effective interest rate of 14%. The deposits to the sinking fund are equal to 1,627.45 minus the interest on the loan and are made at the end of each year for 10 years.

Determine the balance in the sinking fund immediately after repayment of the loan.

4. A loan is amortized over five years with monthly payments at a nominal interest rate of 9% compounded monthly. The first payment is 1000 and is to be paid one month from the date of the loan. Each succeeding monthly payment will be 2% lower than the prior payment.

Calculate the outstanding loan balance immediately after the 40th payment is made.