



Course Number and Title: MAT 145 Math of Finance

Campus Location:

Georgetown, Dover, Stanton, Wilmington

Effective Date:

2018-51

Prerequisite:

MAT 020, SSC 100 or concurrent

Co-Requisites:

None

Course Credits and Hours:

3.00 credits

3.00 lecture hours/week

0.00 lab hours/week

Course Description:

This course covers the mathematics of buying and selling, personal finance, conversions, inventory control, payroll, banking, annuities, business statistics, and applied problems.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

Scientific calculator

Schedule Type:

Classroom Course

Hybrid Course

Online Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Analyze problems involving the mathematics of buying and selling. (CCC 2, 6)
2. Analyze problems involving personal finance. (CCC 2, 6)
3. Calculate conversions within and between the basic units of measurements in metric, apothecary, and English measurements. (CCC 2, 6)
4. Analyze problems involving inventory control. (CCC 2, 6)
5. Calculate gross and net pay for employees earning wages, salaries, and commission. (CCC 2, 6)
6. Analyze problems involving statistics in business and health applications. (CCC 2, 6)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Analyze problems involving the mathematics of buying and selling.
 1. Solve applications problems involving percent.
 2. Calculate the net price given the list price and a single trade discount.
 3. Calculate the net price and the single discount equivalent given the list price and a series of discounts.
 4. Calculate the cash discount and the amount due given the invoice amount, the invoice date, the payment date, and the terms of the invoice.
 5. Calculate the selling price, markup, percent of markup, and cost of an item when the markup is based on cost.
 6. Calculate the selling price, markup, and cost of an item when the markup is based on selling price.
 7. Calculate the markdown, percent of markdown, and the sale price of an item.
 8. Calculate the turnover at cost and the turnover at selling price.
2. Analyze problems involving personal finance.
 1. Calculate simple interest problems: the interest, principle, and time and rate of personal loans.
 2. Calculate the exact and ordinary interest given the principle, rate, and time of personal loan.
 3. Calculate the number of days between two given calendar dates for a personal loan.
 4. Prepare reconciliation of personal banking statements.
 5. Calculate the interest, principal, rate and time of open-ended credit, installment loans, and personal property loans.
 6. Calculate the compound amount, the compound interest, and the present value using the compound interest formula and the compound interest tables.
 7. Find the amount of the annuity due.
 8. Find the future value of an ordinary annuity.
3. Calculate conversions within and between the basic units of measurements in metric, apothecary, and English measurements.
 1. Identify measurement systems.
 2. Determine appropriate measurement systems for application problems.
 3. Define basic units of measurement in metric, apothecary, and English systems.
 4. Convert among measurement systems.
 5. Identify both abbreviations and symbols used in calculations.
4. Analyze problems involving inventory control.
 1. Calculate the average inventory when inventory is taken at cost.
 2. Calculate the average inventory when inventory is taken at selling price.
5. Calculate gross and net pay for employees earning wages, salaries, and commission.
 1. Calculate monthly and weekly gross earnings given the amount of the annual salary.
 2. Calculate hourly rate given weekly, biweekly, semi-monthly, or annual salary.
 3. Calculate gross earnings given the salary, the overtime rate, and the number of hours worked.
 4. Calculate gross earnings given the rate of commission and net sales.
 5. Calculate gross earnings given the piecework rate and the amount of production.
 6. Calculate various types of deductions, including federal withholding tax, social security tax, Medicare tax, and state and/or local withholding tax.
 7. Calculate net pay.
 8. Calculate an employer's matching social security and Medicare contributions, and find the quarterly amount due to the Internal Revenue Service (IRS).
 9. Find the amount of federal unemployment tax due.
6. Analyze problems involving statistics in business and health applications.
 1. Prepare and analyze bar graphs, pictograms, circle graphs, frequency distributions, histograms, and line graphs.
 2. Calculate the mean, median, mode, range, and standard deviation of a set of data.
 3. Calculate the weighted mean from a frequency distribution.
 4. Use the empirical rule to find percentages of a normal distribution.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

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|----|---|-----|---|---|
| 92 | - | 100 | = | A |
| 83 | - | 91 | = | B |
| 75 | - | 82 | = | C |
| 0 | - | 74 | = | F |

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

None

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.