Course Number and Title: MAT 052 Quantitative Reasoning Support

Campus Location:
Georgetown, Dover, Stanton, Wilmington

Effective Date:
2022-51

Prerequisite:
None

Co-Requisites:
MAT 152

Course Credits and Hours:
2.00 credits
2.00 lecture hours/week
0.00 lab hours/week

Course Description:
Quantitative Reasoning Support is designed to be taken simultaneously with Quantitative Reasoning (MAT 152). This course supports students in developing foundational skills and learner skills, strategies and reasoning needed to succeed in Quantitative Reasoning (MAT 152) including communication and appropriate use of technology. Topics include the study of numeracy and the real number system; algebraic concepts; number, ratio and proportional reasoning; modeling; probability; and statistics.

Required Text(s):
Obtain current textbook information by viewing the campus bookstore - 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
Video Conferencing
Web Conferencing
Hybrid Course
Online Course
Hyflex

Disclaimer:
None

Core Course Performance Objectives (CCPOs):

1. Develop conclusions and make decisions based on analysis and critique of quantitative information using proportional reasoning. (CCC 2, 6)
2. Evaluate mathematical models, including situations where underlying assumptions must be recognized and/or where reasonable assumptions must be made for the model. (CCC 2, 6)
3. Assess probabilistic reasoning in order to draw conclusions, to make decisions, and to evaluate outcomes of decisions. (CCC 2, 6)
4. Defend the rationale of decisions based on understanding, analysis, and critique of statistical information and summaries. (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. Develop conclusions and make decisions based on analysis and critique of quantitative information using proportional reasoning.
    1. Solve real-life problems requiring interpretation of ratios in a variety of contexts.
    2. Solve real-life problems relating to rates of change, distinguishing between and utilizing models that describe absolute change and relative change including growth and decay.
    3. Distinguish between proportional and nonproportional situations and, when appropriate, apply proportional reasoning such as with scaling, dimensional analysis and modeling.
2. Evaluate mathematical models, including situations where underlying assumptions must be recognized and/or where reasonable assumptions must be made for the model.
    1. Analyze and critique mathematical models and be able to describe their limitations.
    2. Use models, including models created with spreadsheets or other tools, to estimate solutions to contextual questions, identify patterns, and identify how changing paraments affect the results.
    3. Choose and create models for bivariate data sets, and use the models to answer questions and draw conclusions or make decisions.
3. Assess probabilistic reasoning in order to draw conclusions, to make decisions, and to evaluate outcomes of decisions
    1. Analyze claims based on empirical, theoretical, and subjective probabilities.
    2. Use data displays and models to determine probabilities (including conditional probabilities) and use these probabilities to make informed decisions.
4. Defend the rationale of decisions based on understanding, analysis, and critique of statistical information and summaries.
    1. Use statistical information from studies, surveys, and polls (including when reported in condensed form or as summary statistics) to make informed decisions.
    2. Create visual displays of real-world data using charts, tables and graphs and describe their strengths and limitations.
    3. Summarize, represent, and interpret data sets on a single count or measurable variable.
    4. Use properties of distributions to analyze data and answer questions.

Evaluation Criteria/Policies:
The grade will be determined using the Delaware Tech grading system:

90	–	100	=	A
80	–	89	=	B
70	–	79	=	C
0	–	69	=	F

Students should refer to the Student 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.

Final Course Grade:
Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
Final Assessment - Summative	20%
Activities/Quizzes - Formative	30%
Homework	20%
Notebook/Discussion	30%
TOTAL	100%

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 web page or visit the campus Advising Center.