JCC OFFICIAL COURSE OUTLINE **Document 5**

Course number, title and credits; total time allocation

Course Letter/Number	MAT 135	Credits	4	Title	Finite Mathematics
Lecture/Discussion	4	hrs/semester	Lab		hrs/semester
Clinical		hrs/semester			

Catalog Description and Pre- and Co-requisites (Same as taxonomy and catalog)

This course is for students whose programs do not require trigonometry (or the Calculus sequence). The topics that will be included are linear, exponential, quadratic, polynomial and logarithmic functions and models; systems of linear equations; linear regression; mathematics of finance and financial modeling; matrices, linear programming; permutations; combinations, probability theory; probabilistic simulations; decision theory; descriptive statistics; and Markov chains. The mathematics department recommends that the prerequisite not be more than two years old. If the prerequisite is more than two years old, then the recommendation is that the course placement exam should be taken or the prerequisite be retaken to ensure the success of the student.

Prerequisite: MAT 131, with 2.0 minimum, within 2 years

Knowledge, Skills and Abilities Students Acquire from this Course (Educational Objectives)

1. *Demonstrate conceptual understanding of various types of functions; sketch or identify their graphs both by hand and with the aid of a graphing calculator.*
2. *Explain and use the relationship between exponential and logarithmic function to sketch their graphs and apply their properties in solving applied problems.*
3. *Demonstrate and apply the concepts associated with the mathematics of finance: simple interest, compound interest, annuities, and sinking funds as they pertain to mortgages, loans, car payments, and savings accounts.*
4. *Solve application problems with mathematical modeling that involve linear systems, matrices, linear inequalities, graphical techniques, and the Simplex Method.*
5. *Demonstrate an understanding of the relationships between linear equations, linear inequalities, and discrete optimization problems with occur in business, life, and the social sciences.*
6. *Solve problems involving counting by using basic counting principles, permutations, and combinations.*
7. *Demonstrate an understanding of the difference between: theoretical and empirical probability, the various rules of probability, and the relationship between probability and matrices in the use of Markov Chains to study long term behavior.*
8. *Use appropriate technology as part of their completing the objectives above.*

Associate Degree Outcomes Addressed in this Course (These must appear in course syllabus.)

- *ADO 3: Demonstrate computational skills and mathematical reasoning*
- *ADO 7: Critical Thinking and Problem Solving*

Units/topics of Instruction

See course description and educational objectives.

Instructional Techniques and Procedures

Although techniques vary from instructor to instructor, this course usually consists of mostly lecture and group work.

Instructional Use of Computer or Other Technology

A graphing calculator is used extensively in this course. The instructor may choose to incorporate the use of MyMathLab in homework, quiz and test assignments. Also, the instructor may choose to incorporate the use of EXCEL in solving various application problems.

Instructional Materials and Costs to Students

The instructional material for this course consists of the textbook and a graphing calculator.

Skills and abilities students should bring to the course

Able to read	___	a limited amount of material	Able to compute	___	basic, pre-algebraic problems
	x	an average amount of material		___	simple algebraic problems
	___	an above average amount of material		x	higher order mathematical problems
Able to read	___	relatively easy material	Able to write	x	short compositions
	x	moderately difficult material		___	medium length compositions
	___	technical or sophisticated material		___	lengthy compositions
Able to use technology	x	keyboard skills/familiar with computer	Other necessary abilities	___	
	x	computer application		___	
	x	web navigation		___	

The course is usually scheduled

Day:	☐	Fall	☒	Winter	☒	Spring
Evening:	☐	Fall	☐	Winter	☐	Spring

Prepared by _____ **Date** _____

Approved by Dept. _____ **Date** _____

Approved by Dean _____ **Date** _____

Approved by Curr. Comm. _____ **Date** _____

(Last names, please)

Form Revised 12/4/00