JCC OFFICIAL COURSE OUTLINE

Document 5

Course number, title and credits; total time allocation

Course Letter/Number	MAT 133	Credits	4	Title	Introduction to Probability and Statistics

Lecture/Discussion	4	hrs/semester	Lab		hrs/semester	Clinical		hrs/semester

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

Introduction to experimental design, data representation, basic descriptive statistics, probability theorems, frequency distributions and functions, binomial and normal probability distributions and functions, probability density functions, hypothesis testing, statistical inference, Chi-square analysis, linear regression, correlation, and application of the above in making informed, data-driven decisions in real-world contexts. Both graphing calculators and computer-based statistical software (MS Excel) will be used. If the prerequisite is more than two years old, then the mathematics department recommends that the course placement exam be taken or the prerequisite be retaken to ensure the success of the student. *Prerequisite: MAT 033 or MAT 131 or higher, with 2.0 minimum, within 2 years.*

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

1. Perform a hypothesis test involving means and proportions.
2. Create, interpret, and apply graphical displays of data (histograms, bar charts, circle graphs, dot plots, and stem and leaf displays)
3. Compute, interpret, and apply descriptive numerical measures (mean, mode, median, range, variance, and standard deviation)
4. Compute and apply a linear regression line and Pearson product moment correlation coefficient and rank correlation coefficient.
5. Compute, interpret, and apply probabilities involving discrete, binomial, normal, and *t*-distributions.
6. Compute and apply confidence intervals for means and proportions.
7. Use appropriate technology (such as a graphing calculator) to enhance the understanding of previous objectives.
8. Knowledge and awareness of statistics in scientific issues and current events
9. Use MS Excel or other Statistical Software to support mathematical reasoning and problem solving.

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. There may also be some large group projects and classroom experiments to illustrate concepts.

Instructional Use of Computer or Other Technology

A graphing calculator is used extensively in this course. Also, the instructor may choose to incorporate the use of MS Excel or other statistical software packages in solving various application problems and projects. The instructor may choose to incorporate the use of MyMathLab in homework, quiz and test assignments.

Instructional Materials and Costs to Students

The instructional material for this course consists of the textbook and a graphing calculator. Due to the nature of the course, manipulatives will also be occasionally needed.

Skills and abilities students should bring to the course

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

The course is usually scheduled

Day:	[X] Fall	[X] Winter	[X] Spring
Evening:	[X] Fall	[X] 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