

Syllabus for
ACT 320 --Quantitative Analysis
3 Credit Hours
Spring 2021

I. COURSE DESCRIPTION

A study of quantitative analysis interpretations of data for business decision-making; probability theory, linear programming, special-purpose algorithms, inventory models, PERT/CPM, forecasting, and other quantitative methods.

Prerequisites: MAT 232, ACT 215 and ACT 216.

II. COURSE GOALS

- A. The purpose of this course is to enable the student to gain a basic understanding of the scientific approach to managerial decision-making (quantitative analysis) as well as the management of systems or processes that create goods and/or provide services (operations management). This approach involves the comprehension and use of mathematical models to solve business problems.
- B. In line with the purpose of this University, this course seeks to do the following:
 - 1. Contribute to the education of the whole person.
 - 2. Sharpen the communication, computation, and critical analysis skills of each student.
 - 3. Encourage the student in acquiring basic knowledge.
- C. In line with the purpose of the business administration program, this course is designed to prepare a student for an active role in the business world. Quantitative Analysis is part of a program to educate students who will be spiritually alive, intellectually alert, and physically disciplined to go into every man's world and be a positive influence on the business world.
- D. In line with the departmental objectives, this course seeks to prepare students in the following areas:
 - 1. Critical thinking (skills in reasoning, objectivity, analysis, interpretation, research, or decision making relevant to the discipline).
 - 2. Communication (abilities in areas such as written, oral, and nonverbal communication; group process; information technology and/or media production).
 - 3. Broad interpretation of the dynamics of business within the social and professional context.
 - 4. Internalization of Christian business ethics and professionalism.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

- A. Terminal Objectives
As a result of successfully completing this course, the student will be able to solve quantitative models and problems by utilizing the decision-making techniques taught in the course.

B. Unit Objectives

As a result of successfully completing each unit, the student will be able to solve, differentiate, and analyze models as related to statistical analysis, financial analysis, accounting analysis, IS applications, and management analysis using each of the following:

1. Probability Theory
2. Forecasting Models
3. Decision Theory
4. Inventory Control Models
5. Linear Programming
6. Waiting Line Models
7. Project Management Models
8. Supply Chain Models
9. Management of Quality
10. Quality Control Models

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Textbook

1. Stevenson, William J., Operations Management (14th Ed.). Boston: McGraw-Hill Irwin, 2020. e-book ISBN: 978126023889
2. Connect Access Card for *Operations Management* ISBN: 9781260242355

B. Required Materials

1. McGraw-Hill *Connect* access
2. TI 83Plus (or better) Calculator
3. Internet Access, Web Browser, e-mail account
4. Spreadsheet software (preferably MS Excel)

C. Recommended Materials

1. QA Class notes available in the ORU Copy Center (highly recommended)

V. POLICIES AND PROCEDURES

A. University Policies and Procedures

1. Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, electronic, video, multimedia, or computer software. Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU's Honor Code: "I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments." Plagiarism is usually defined as copying someone else's ideas, words, or sentence structure and submitting them as one's own. Other forms of academic dishonesty include (but are not limited to) the following:
 - a. Submitting another's work as one's own or colluding with someone else and submitting that work as though it were his or hers;
 - b. Failing to meet group assignment or project requirements while claiming to have done so;
 - c. Failing to cite sources used in a paper;

d. Creating results for experiments, observations, interviews, or projects that were not done;

e. Receiving or giving unauthorized help on assignments.

By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.

2. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.

3. Students are to be in compliance with University, college, and departmental policies regarding Whole Person Assessment requirements. Students should consult the WPA handbooks for requirements regarding general education and the students' majors.

a. The penalty for not submitting electronically or for incorrectly submitting an WPA artifact is a zero for that assignment.

b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. Course Policies and Procedures

1. Evaluation Procedures

Grading Procedures

There are 600 points possible in the course as follows:

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Exam 4	100 points
<u>Minus Lowest of 4 exam grades</u>	<u>-100 points</u>
Total Exam points	300 points
Homework/Quizzes/Papers	150 points
<u>Final Exam</u>	<u>150 points</u>
Total Points possible	600 points

Grades are assigned on the basis of total points earned:

A = 90% * 600 points = 540 points

B = 80% * 600 points = 480 points

C = 70% * 600 points = 420 points

D = 60% * 600 points = 360 points

F = Below 60% * 600 points < 360 points

2. Whole Person Assessment Requirements

There are no WPA requirements for this course.

3. Attendance Policy

a. In line with the University policy, attendance is mandatory and is taken at the beginning of class. All students who miss class including those who are administratively excused are expected to obtain class notes and materials and to turn in assignments within a reasonable time period determined by the professor. In business, employees are allowed personal days or sick leave to be absent from the job without penalty.

Similarly, students may miss class up to the number of times per week a class meets without penalty (see table below). This allowance is for illness, personal business, and/or emergencies. The professor has the discretion to excuse any absence beyond those described above.

- b. If a student has excessive *unexcused* absences, a penalty will be assessed as follows:

Number of days the class meets per week	Number of absences <u>not</u> resulting in a penalty	For <u>each additional day</u> the student incurs an unexcused absence beginning with absence number:	The student's total number of points will be reduced by*:
3	3	4	2%
2	2	3	3%
1	1	2	7%

*Based on a 15 week semester and the number of days per week the class meets.

- c. Whether excused or unexcused, excessive absences may negatively impact the student's performance/grade and may cause the student to fail the course.
- d. The professor has the prerogative to assign bonus points (if any) for perfect attendance.

4. Tardies

- a. Tardy is defined as missing *any* portion of class.
- b. Being consistently tardy to class is disruptive to the class and disrespectful to the professor and to fellow class members. This type of behavior is unacceptable in business. Thus, three unexcused tardies will be equal to one unexcused absence.
- c. Depending on the amount of the class missed, makeup work may be required or a student may be marked absent for that class.
- d. To not be counted absent altogether, the student is responsible to inform the professor that he/she was tardy immediately following that class.

5. Homework Problems

- a. Homework problems will be posted either in D2L or McGraw-Hill's *Connect* homework manager. In order to complete all the assignments, students **must** purchase and use *Connect*. No exceptions will be made for students who choose not to purchase *Connect*.
- b. Homework due dates are announced upon the completion of the chapter.
- c. Homework is considered late if not submitted by 2:30pm on the due date. **Ten percent (10%) per day** is deducted for late homework. Special consideration will be given for administratively excused absences only. Regardless, **no homework is accepted after the exam over which those chapters are covered; there are no exceptions to this rule.**
- d. Students may correct hand-written assignments for full credit. However, students can only correct problems which were **attempted**. Missing or incomplete problems may not be corrected. Corrections must be turned in by the specified due date. **Late corrections are not accepted.**
- e. For problems completed on *Connect*, students will be allowed unlimited attempts to complete the problem correctly *before* the due date.

- f. For hand-written math assignments, problems must be worked out on paper for full credit. No credit is given if only the answer is turned in without any supporting formulas, graphs, etc.
 - g. Students are encouraged to help each other. However, copying of homework assignments is not allowed! **Identical homework assignments** will result in grades of **0** for all parties involved. This includes identical spreadsheets for Excel assignments. Persistent violators will be reported to the department Chair. *Connect* assignments are algorithmic—that is, the problems are the same but the numbers change so that the answers are different for each student.
6. Quiz
- a. Chapter quizzes are posted in D2L or in Connect.
 - b. Pop quizzes given in class or take-home quizzes are given at the discretion of the professor and may cover any topic. Pop quizzes may often be used to encourage students to arrive to class on time. Only students with academically excused absences may make up missed quizzes.
 - c. All quiz points are added to the homework points.
7. Written Assessment of Videos
- a. If assigned, written assessments must be typed and uploaded to the appropriate D2L dropbox by the specified due date.
 - b. Once submitted, D2L reports plagiarism results. Any plagiarism score above 25% is unacceptable. If this is the case, students may check the results, make corrections and resubmit for a new score before the due date. Otherwise, points will be deducted.
 - c. In addition, students must run the written assessment through Grammarly. Any Grammarly score below 90 is unacceptable. If this is the case, students may check the results, make corrections and resubmit for a new score before the due date. Otherwise, points will be deducted.
8. Exams
- a. You need to provide five (5) scantrons to the Professor by the specified date.
 - b. Exams **must** be taken during the section for which you are enrolled. **No Exceptions.** However, if, without prior permission, you come to a different section to take the exam, you will be charged the late exam fee.
 - c. Makeup exams **do not** consist of multiple choice questions and must be taken when it is convenient for the professor.
 - d. The late exam fee is strictly enforced.
 - e. Only calculators are allowed during an exam. Laptops, iPads, e-books, cell phones, MP3 devices, or any other handheld device **cannot** be used during the exam. **Points are deducted from the exam if caught using any of these devices or if your cell phone goes off for any reason.**
 - f. The lowest exam grade is dropped before the final grade is calculated.
 - g. The Final Exam is comprehensive and must be taken according to the ORU final exam schedule. The Final Exam cannot be dropped.
9. Extra Credit
- NO** extra credit assignments will be given.

10. Professional Development Points
If the student earns professional development points (PDP's) and applies them to this course, they are added to the student's total points at the end of the semester.
11. Attending Different Sections
The student may attend any of the QA sections but it is the responsibility of the student to make sure they are counted on the role. **The only exception is on exam days (including the final exam)** when all students must attend the section in which they are enrolled.
12. Cellular Phones and other electronics
 - a. Laptops are not needed in class and therefore should be left at home.
 - b. Cell phones and other electronic devices **must be turned off** during class and **will not** be allowed during exams (see 8e above).
 - c. Use of a cell phone or other electronic device during class is disrespectful to the professor and disruptive to those around you. Excessive use will result in the student being counted absent for that class period.
13. Professor's name: Dr. Ardith Baker, Senior Professor & Assistant Chair
Office: College of Business, Graduate Center 3F14
Telephone: 918-495-6669
e-mail: abaker@oru.edu

VI. COURSE CALENDAR

Chapters will be covered in this order:

Chapter	Topic
1	Introduction to the course, Introduction to Operations Management
Class Notes	Statistics Reviews 1
Class Notes	Statistics Reviews 2
Class Notes	Statistics Reviews 3
Class Notes	Statistics Reviews 4
Review for Exam 1; Exam 1 (Statistics Review)	
19	Linear Programming & Forecasting Part 1
3	Forecasting
5S*	Decision Theory
Review for Exam 2; Exam 2 (Chapters 3, 5S, 19)	
9	Management of Quality
10	Quality Control
12	Inventory Management
Review for Exam 3; Exam 3 (Chapters 8S, 10, 13)	
17	Project Management
18	Waiting Lines
15**	Supply Chain Management
Review for Exam 4; Exam 4 (Chapters 15, 17, 18)	
Review for Final Exam (Comprehensive)	
<u>Final Exam</u>	

* Supplemental Chapter

** Instructions for this chapter will be given in class.

***Calendar is subject to change.

Course Inventory for ORU's Student Learning Outcomes

Quantitative Analysis for Management – ACT 320 Spring 2021

This course contributes to the ORU student learning outcomes as indicated below:

Significant Contribution – Addresses the outcome directly and includes targeted assessment.

Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.

Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.

No Contribution – Does not address the outcome.

The Student Learning Glossary at <http://ir.oru.edu/doc/glossary.pdf> defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities		Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
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1	Outcome #1 – Spiritually Alive Proficiencies/Capacities				
1A	Biblical literacy			X	
1B	Spiritual Formation			X	

2	Outcome #2 – Intellectually Alert Proficiencies/Capacities				
2A	Critical thinking, creativity, and aesthetics	X			
2B	Global & historical perspectives			X	
2C	Information literacy		X		
2D	Knowledge of the physical and natural world			X	

3	Outcome #3 – Physically Disciplined Proficiencies/Capacities				
3A	Healthy lifestyle				X
3B	Physically disciplined lifestyle				X

4	Outcome #4 – Socially Adept Proficiencies/Capacities				
4A	Ethical reasoning and behavior		X		
4B	Intercultural knowledge and engagement			X	
4C	Written and Oral Communication		X		
4D	Leadership capacity			X	

Addendum to the Syllabus for
ACT 320 --Quantitative Analysis
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Coronavirus: All faculty members and students are expected to be face-to-face in the classroom except under conditions provided in the ORU Fall 2020 Coronavirus Response Plan, which can be found at <https://oru.edu/campus-health/>.