

Oakland University: School of Business Administration
QMM 2410: Statistical Methods for Business (II)

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Office hours: W/ Th 12:00 PM – 1:00 PM ; by appt.

Winter 2018
Tu / Th 3:00 PM – 4:15 PM
Classroom: 2023 HHB
Office: 200B Elliott Hall

TEXT

Applied Statistics in Business & Economics by David P. Doane & Lori E. Seward (McGrawHill) with Connect Plus Access Code

STUDENT RESOURCES

McGraw Hill Connect. Course Registration information sheet on Moodle.

<http://connect.mheducation.com/class/j-carolan-qmm2410-w2018>

Software: We will use Excel.

Learning Stats files (on Moodle)

ADDITIONAL ASSISTANCE

The ***Tutoring Center*** has tutors available on most subjects at all levels at no cost to students. Students requiring special assistance (including those affected by the Americans with Disabilities Act) may contact the office, which will inform the instructor of any special conditions pertaining to their learning. The SBA also provides ***Peer-to-peer tutoring***. I will provide that schedule to you when it is published

OFFICE HOURS: My standing office hours are above. If these hours do not work for you, we can set up a time that is convenient for both of us. The best way to do this is to send me an email.

EMAIL

I will periodically send emails to your **Oakland University** email account regarding the course. You are responsible for any information contained in the emails – check your email often. If you don't use OU email regularly, forward your OU mail to the email program you use regularly.

COURSE REQUIREMENTS

Attendance: While the textbook provides the framework for the class and presents the material, much is gained from class attendance via information presented and through class discussions. I will not take attendance, but I will take note of students that are habitually tardy, absent, or disruptive. Likewise, I will take note of those students that are eager to productively participate in discussion. Each student has personal experiences that will contribute to the entire class' knowledge development. I'm hoping that we can engender an environment where open discussion is encouraged so that we can capitalize on this.

Pre-class preparation: I expect every student to read the requisite chapters BEFORE class meetings. I will start every class with an open invitation to ask questions on material and problems from the textbook. This is your responsibility. There will be no credit or grade given for this work, however, students in previous semesters that have diligently followed this course of study have far outperformed those that have not. If you have a question that you need help on, please try to email it to me *before* class. You may use the LearnSmart modules if you like – they are not required but are made available to you.

Pre-quizzes: For each chapter starting with Chapter 9, there will be a "pre-quiz" on-line in Connect open BEFORE we discuss the topic in class that you must take BEFORE the class period on the material to be covered during that upcoming class period. These will be graded on a fairly modest scale (see below) with multiple attempts allowed. The idea is that you read and have a basic understanding of the material BEFORE we cover it in class.

%	GPA
80+	4
70 - 79	3.0 - 3.9
60 - 69	2.0 - 2.9
<59	0

Homework Assignments: There are 3 different types of HW in this class.

On-line HW: Before class, on Connect. Closes 15 minutes prior to class. On material already covered.

Optional HW: On Connect. These are optional. For each one completed, you may reduce the weight of the final exam by 2% IF the grade on the optional HW exceeds your grade on the final exam (i.e. it can only help you, not hurt you). There will be 11 of these (approximately 1 per week starting after week 3).

Data Sets: A large part of this course is learning how to work with datasets and run regression analyses. We will do three (3) regression assignments. These will be discussed in more detail as they become due.

Post-quizzes: For each chapter starting with Chapter 9, there will be a "post-quiz" on-line on Connect open AFTER we discuss the topic in class that you must take before midnight on the following Sunday. These will be graded according to the class grading scale (see below). You have only ONE attempt at these.

Exams: The final exam in the class is a take home exam. It will be posted on Moodle after the last class period. It is due on April 19 (<https://wwwp.oakland.edu/registrar/important-dates/#tab-5>) between 12:00 PM and 1:00 PM. The weight of the final will depend on the number of optional HW assignments that you submit. It will be a minimum of 25% and a maximum of 47% of your class grade.

The final grade is a weighted average of all exams and assignments. The weights are:

Pre-quizzes (7)	10.5%
Online HW (7)	14%
Data Sets (3)	18%
Online Post-quizzes (6)	15%
Optional HWs (11)	0 – 22%%
Final Exam	42.50% - 20.5%
	100%

Approximate Grading Scale for all Requirements (except pre-quizzes)

91 – 100	= 3.7 – 4.0	(A)
80 – 90	= 3.0 – 3.6	(B)
70 – 79	= 2.0 – 2.9	(C)
55 - 69	= 1.0 – 1.9	(D)
< 55	= 0.0	(F)

PLEASE NOTE - I DO NOT POST GRADES ON MOODLE FOR STUDENTS TO TRACK GRADES. I HAVE HAD TOO MANY PROBLEMS WITH MOODLE MIS-CALCULATING GRADES. IT IS YOUR RESPONSIBILITY TO KEEP UP ON WHERE YOU STAND.

FACULTY FEEDBACK WILL BE USED TO SEND NOTES TO STUDENTS THAT ARE STRUGGLING DURING THE FIRST HALF OF THE SEMESTER. WE WILL DISCUSS DAY ONE.

IF YOU ARE STRUGGLING, DO NOT PROCRASTINATE. DO NOT DISAPPEAR. COME TO ME FOR HELP. I WILL DO EVERYTHING IN MY POWER TO ASSIST YOU AND GUIDE YOU TO ADDITIONAL RESOURCES. IF YOU DON'T COME TO ME FOR HELP, I CANNOT HELP YOU.

Add/Drops: The University add/drop policy will be explicitly followed. Fall 2017 important dates are located at <https://www.oakland.edu/registrar/important-dates/>

CLASSROOM CONDUCT AND RULES

To help establish and maintain a courteous, distraction-free learning environment in our classroom, I ask that all students please observe the following basic rules of behavior in class:

- Turn off cell phones, computers (except for special need cases), beepers, Blackberries, Ipods, and pagers during class sessions and exam sessions
- Come to class on time and stay to the end. If you must leave early, let me know at the beginning of the class. If you get here late, enter quietly.
- No conversing during the lectures
- Be respectful of others who may have different views and standards than your own. This includes not using derogatory or unacceptable language in the classroom.

ACADEMIC CONDUCT

Cheating on examinations, plagiarism, falsifying reports/records, and unauthorized collaboration, access, or modifying of computer programs are considered serious breaches of academic conduct. The Oakland University policy on academic conduct will be strictly followed and all cases will be reported to the Dean of Students Office. See catalog under Academic Policies and Procedures.

Reading Assignment and Tentative Schedule (subject to change): posted on Moodle

QMM2410 Class Description (University General Education Requirement): next page

QMM2410 (University General Education Requirement)

This course is a continuation of QMM 2400, covering analysis of variance, nonparametric statistics, correlation, regression, statistical process control, and time series analysis. Emphasizes business applications and computer analysis of data. Includes report writing, computer projects, and presentations. Its prerequisites are MTH 122 or 154, and QMM 2400 or equivalent, with a minimum grade of 2.0 in each course. MTH 122 is a knowledge foundation area in the General Education Program. QMM 2410 satisfies Oakland's General Education requirements in the *knowledge applications* area by demonstrating how knowledge in a field outside of the student's major can be evaluated and applied to solve problems across a range of applications, and knowledge of the personal, professional, ethical and societal implications of these applications. QMM 2410 seeks to help the student:

- ☑ Recognize data that requires analysis of variance, use computer tools to calculate and interpret ANOVA results, and understand the assumptions underlying ANOVA.
- ☑ Recognize the purposes non-parametric tests and perform a few common tests using the computer.
- ☑ Use regression terminology correctly, analyze bivariate data (scatter plots, correlation, simple regression), and know the assumptions of least-squares regression.
- ☑ Fit trends and make forecasts from time series data using appropriate computer tools.
- ☑ Estimate a multiple regression, perform significance tests, and interpret the results. Understand the importance of data conditioning, know when a model may be over-fitted and why that can be a problem, and perform diagnostic tests for model adequacy (multicollinearity, residual tests, leverage).
- ☑ Interpret common process control charts and apply simple pattern recognition rules to detect out-of-control processes.
- ☑ Use computers confidently, write effective technical reports, and work effectively with a team

By applying methods taught in the MTH 121 prerequisite course, QMM 2410 builds on concepts such as linear equations, independent and dependent variables, algebraic functions, graphs, and exponential functions and compound interest in linear trend models of time series data. Students apply MTH 122 concepts of derivatives in interpreting time series growth models, partial derivatives in interpreting regression models, and integrals as areas under curves to interpret tables of critical values and p-values in significance tests. Students apply QMM 2400 concepts such as descriptive statistics, probability distributions, confidence intervals, and hypothesis tests in more complex applications (e.g., analysis of variance, nonparametric tests, and regression). QMM 2410 builds upon the student's course in information technology MIS 100 (or CSE 125 or MIS 200) for applications of desktop software (Excel, Word, PowerPoint) to do calculations, write reports, and/or prepare class presentations. QMM 2410 applies knowledge in a field outside of the student's major area of study by applying methods taught in the prerequisite courses (MTH 122 and QMM 240) and their prerequisites MTH 121 and CSE 125 (or MIS 100 or MIS 200).

The cross-cutting capacity is *critical thinking*. Students learn to find patterns and identify relationships among variables in complex data sets, estimate and apply regression models, look for anomalies in regression results (e.g., unusual residuals, high leverage, collinearity, non-normal residuals, heteroscedasticity, or autocorrelation). Students learn to apply tools such as ANOVA and regression to problems in business, economics, and not-for-profit organizations. Because this course applies knowledge from prerequisite courses along with methods taught in this course to problems of societal importance and managerial decision making, its content enhances students' critical thinking skills. Students also learn to avoid common pitfalls in reasoning from data (e.g., improper uses of regression, failed assumptions, misinterpretation of hypothesis tests or *p*-values, recognition of the limitations of regression). Writing is not a major component of this course, but instructors will assign written individual or team homework exercises and/or computer projects.