

**Oakland University**  
**School of Business Administration**  
**QMM 2410 (QMM 241): Statistical Methods for Business II**

<b>Instructor:</b> Soo Sieber	<b>Class Meeting Time and Location:</b> 6:30-9:20 PM Tuesday HHB 5036
<b>Email:</b> <a href="mailto:Sieber@oakland.edu">Sieber@oakland.edu</a>	<b>Office Hours &amp; Location:</b> W 5:40 PM EH 332 or by an appointment

### **Catalog Course Description**

Continuation of QMM 2400: 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. Satisfies the university general education requirement in the knowledge applications integration area. Prerequisite for knowledge applications: completion of the general education requirement in the formal reasoning knowledge foundation area.

**Prerequisite:** (MTH 122 or MTH 154) and (STA 225 or STA 226 or QMM 2400) with a minimum grade of 2.0 in each course, and sophomore standing.

**The cross-cutting capacity is *critical thinking*.**

### **Course Objectives**

Students have to apply their knowledge, information and data to make informed and optimal decisions in their workplace and their daily life. Also, how to integrate all knowledge into a decision-making process and how to report or present it are important skills for business students. Integrating prior knowledge and skills learned from MIS 100 (Excel, Word, ppt, and creating good report), MTH 122 or MTH 154 (understanding linear programming that used in statistical analysis such as regression analysis), and QMM 240 (basic analysis of data, sampling method, hypothesis test, and understanding of different types of distribution). Upon completion of this course, the student will be able to:

- Do Hypothesis testing to compare different statistics and to interpret the analysis results
- Use statistical software to perform calculations and statistical analysis
- Understand the Analysis of Variance, use computer tools to calculate and interpret ANOVA results, and understand the assumptions underlying ANOVA
- Estimate a simple or multiple regression and perform appropriate analysis including necessary hypothesis test
- Use regression terminology correctly, analyze bivariate data (scatter plots, correlation, simple regression), and know the assumptions of least-squares regression
- 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
- Fit trends and make forecasts from time series data using appropriate computer tools
- Recognize the purposes non-parametric tests and perform a few common tests using the computer
- Use computers confidently, write effective technical reports, and work effectively with a team

### **AOL Written Communication Skills Learning Objectives (QMM 2410)**

1. Be able to articulate main concept(s) in writing
2. Be able to write logically
3. Be able to write clearly and concisely
4. Be able to write using correct grammar and spelling

## Course Materials

### Required:

Doane David P. and Lori E. Seward, Applied Statistics in Business and Economics with Connect Plus Access Code: 5<sup>th</sup> Edition, McGraw Hill,

ISBN for the loose-leaf edition of Doane 5e with Connect access: 9781260106879

\*Students automatically get Connect Plus access for 2 semesters

\*Two or three weeks free trial available; register now using the free trial.

You can purchase only **Connect Plus**, which contains e-book and connect access. Follow the link and then click "How to buy Connect Online" <http://connect.mheducation.com/class/s-sieber-qmm-241-wi-2018-tuesday>

Registration for Connect Plus course website is already open. Register now either using the Free Trials or your purchased access code. Registration or Purchase Help: <http://bit.ly/StudentRegistration>

Megastat and Minitab are available on the Lab computers within Elliot Hall; however, you will need to purchase MegaStat for your personal computer, please go to

[http://highered.mheducation.com/sites/0077425995/information\\_center\\_view0/index.html](http://highered.mheducation.com/sites/0077425995/information_center_view0/index.html)

MegaStat is an excel add-in statistical analysis program that cost around only \$18

## Email and Moodle Announcement

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

### Performance Evaluation

Connect Assignments: HW 15% + Extra Credit Learnsmart Assignment

Projects: 22% (8%, 14%)

In Class Activity (ICA): 10%

Three Exams: Two Exams Each 15% Final Exam 23%

The following Grading Scale will be utilized:

Total Avg	Grade	Total Avg	Grade	Total Avg	Grade	Total Avg	Grade	Total Avg	Grade
95.0%	4	87.0%	3.4	75.0%	2.5	69.0%	2.0	63.0%	1.3
94.0%	3.9	85.0%	3.3	74.0%	2.4	68.0%	2.0	62.0%	1.2
93.0%	3.8	83.0%	3.2	73.0%	2.3	67.0%	1.7	61.0%	1.1
92.0%	3.7	81.0%	3.1	72.0%	2.2	66.0%	1.6	60.0%	1
91.0%	3.6	79.0%	2.9	71.0%	2.1	65.0%	1.5	58.0%	1
89.0%	3.5	77.0%	2.7	70.0%	2.0	64.0%	1.4	0%-57%	0

**However, if class average (among students who took all exams, did assignments, and came to classes) at the end of semester is below 73%, I will use class average as 2.3. For example, if final class average is 75%, I will use above table to assign your final grade. If class average is 68%, then final assigning grade will be: 68% is 2.3, 69% is 2.4, and 67% is 2.2 etc. Final GPA grade will be posted on Sail. If you have any questions regarding your final exam grade, you have to contact me within 1 day of your final exam grade that posted on Moodle. Your final exam will be destroyed after the week of your Sail grade being posted. "I" grade is reserved for the students who has a passing grade before the final and could not take the final exam due to an emergency. (e.g., confirmed, verifiable, and documented medical emergency, death in the immediate family).**

## Course Delivery and Policies

**Reading:** *You have to read each chapter before coming to class in order to understand material better.*

Especially if this is your first time taking statistics, you must read the book and at least understand key terms before the lecture. Learnsmart assignments are extra credits assignments that designed to give incentives to the students who read the chapters before class discussions.

**Lecture:** In the lecture part of the course, we'll do a variety of things. You will need to take notes as I lecture the concepts, theory, examples, etc. Also, I will use example problems to show how to solve the problems. I will demonstrate estimation, appropriate statistical tastings, and analysis using Megastat, Excel, or other statistical programs.

**Homework:** I will assign Connect homework to reinforce some of the concepts and problem-solving strategy in the course. Usually, I will give 1-2 weeks to finish homework and you will have 2 attempts. I will pick the best one. I will not accept any late homework **under any circumstances**. That is why I am giving 2-14 days to finish it. However, in life things do happen, so I will drop one lowest homework.

**Project Assignments:** There will be 2 project assignments: One for an individual report and one for a group report. I will provide the details later.

**In class activity (ICA):** These ICA questions are problems related with topics we are going to learn in each chapter. These in-class activity questions are the example questions that you will see in the problem section of the exams. Each class you should bring the copy of the ICAs usually in the chapter PPT that I posted on Moodle. **However, if you are not following the Classroom Conduct and Rules specified in the syllabus, you will loose ICA points for that day.** No make-up ICAs and I will drop one lowest ICAs.

**Exams:** I will post those dates on Moodle. There will be three exams and one final exam. **No make-up test will be given Except Emergency.** There is a '0' grade for an unauthorized absence from a test.

Authorizations are given for serious events (e.g., confirmed, verifiable, and documented medical emergency, death in the immediate family). If it is an Emergency case, contact your instructor right away to arrange the alternatives. Plans for travel, doctor's appointment, or job-related responsibilities do not qualify.

**Attendance:** Regular attendance and class participation. There will be group discussion or problem solving in the class (in-class activity) that will give the chance to gain 10% of your grade and extra credit. No make-up ICAs and I will drop one lowest ICA. **It is your responsibility to get notes from someone and to find out what important information was given during the class.** Don't miss class!!!!

### 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 the class and the exam:
  - Turn off cell phones and computers (except for special need cases) during class sessions and exam sessions. (except when instructor allows it)
  - Be on time, remain seated, and don't be disruptive
  - Be respectful to your peers and instructor
- ❖ To maintain Regular access to Moodle and registered e-mail to check announcements and other important information
- ❖ To gain full credits for all assignment your writing has to be clearly typed. For in-class activity, your writing must be clear and no cursive writing is allowed. If I cannot read your answers, it will count as wrong answer.
- ❖ To maintain good grades, you are expected to spend 6-9 hours every week for reading, doing all assignments, and studying for exams. If you don't understand, ask and find help. Utilize my office hours and free tutoring at The Tutoring Center.

## Assistance Available

The Tutoring Center has tutors available on all 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.

## Academic Conduct

Cheating on examinations, plagiarism, falsifying reports/records (having someone else write your papers, homework, or take your exams), and unauthorized collaboration (work together on exams, written homework or required papers 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. If a student is found culpable, I will take the appropriate academic action ranging from loss of credit for a specific assignment, examination, or project, to removal from the course with a grade of F or 0.0. At the same time, the Academic Misconduct Committee will take separate actions ranging from suspension for a semester to expulsion from Oakland University. Expulsion means you will not be able to return to Oakland University and your transcript will indicate that you were expelled from Oakland University. See catalog under Academic Policies and Procedures.

**Add/Drops:** The University add/drop policy will be explicitly followed. It is the student's responsibility to be aware of the University deadline dates for dropping the course.

### Tentative Course Schedule

Date	Topic	Text	Connect HW
Week 1 Jan 3-7	Syllabus and Connect Plus Registration QMM 240 Review: Video Lecture on Moodle (No class meetings)	HW for QMM 2400 Review	
Week 2 Jan 8-14	CH 9 Hypothesis Testing	HW for QMM 2400 Review	
Week 3 Jan 15-21	CH 9: Hypothesis Testing and P-values CH 10: Two-Sample Hypothesis Test	10.1 – 10.4	CH 9 Due Sunday 11 PM
Week 4 Jan 22-28	CH 10: Two-Sample Hypothesis Test	10.5 – 10.7	CH 10 Due Sunday 11 PM
Week 5 Jan 29 – Feb 4	<b>Exam 1: (CH 9-10) 6:30 – 8:00 PM</b> CH 11 ANOVA		
Week 6 Feb 5 - 11	CH 11 ANOVA	11.1 – 11.6	CH 11 Due Sunday 11 PM
Week 7 Feb 12 - 18	CH 12 Simple Regression	11.1 – 11.6	
Feb 19 -25	Winter Break		
Week 8 Feb 26 –Mar 4	CH 12 Continued	12.1 -12.3	CH 12 Due Sunday
Week 9 Mar 5 - 11	<b>Exam 2: (CH 11-12) 6:30 – 7:30 PM</b> CH 13: Multiple Regression	12.2 – 12.9	
Week 10 Mar 12 - 18	CH 13: Multiple Regression	13.1-13.3	<b>Project 1 due</b>
Week 11 Mar 19 - 25	CH 13: Multiple Regression Estimations Project Group Work/Computer Lab	13.4-13.8	CH 13 Due Sunday
Week 12 Mar 26-Apr 1	CH 14: Time-Series Analysis	14.1 – 14.6	<b>Project 2 due</b>
Week 13 Apr 2 - 8	CH 14: Time-Series Analysis	14.1 – 14.6	CH 14 Due Sunday
Week 14 Apr 9 - 15	CH 15: Chi-Square Tests	15.1 – 15.3	CH 15 Due Sunday
<b>Week 15 Apr 17</b>	<b>Final Exam (CH 13 – CH 15):</b>		

### The “Don’t Bother” Clause

As business and society embrace the Internet more and more, electronic submission of information correctly and on time is becoming very important. Do not bother regaling me with excuses about various technological disasters and meltdowns that occurred just as you were about to submit your homework or quiz two minutes before it is due. Plan for the possibility of such disasters and get your assignments turned in comfortably before the due date. That is why I am giving you 2 attempts and many days to finish your homework. This habit will pay off in the workplace. It is your responsibility to check that all computers (No tablets, i-pads, & smartphones) and Internet connections you are using are appropriate for your assignment. Also, if you have any technological issue with Connect, you should contact their support system via e-mail, phone, or chatting. Sending me e-mail will not help you at all.

### Grade

Your grades will be posted on Moodle or Connect Plus Course Website in a timely manner. Do not bother regaling me to change your grade with your personal situation or excuses. Instructors do not make students pass or fail the class. Instructors assign grades based on the student performance. All grade information is posted on the syllabus and I will strictly follow the grading policy on the syllabus. If you have any questions or concerns regarding your assignments, quiz, HW, or exam grades, you should contact me within 3 days after I post your grade (within 1 day for the Final Exam) on Moodle. You can see your Connect Plus homework grades in the Connect Plus course website. After the midterms and final, I will update the HW average score on Moodle. Note: Total grade on Moodle is incorrect from time-to-time due to grade weight changes or inability to accommodate extra credits.

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### QMM 241: Winter 2018

By signing this page, I have read the QMM 2410 syllabus in its entirety. I agree to and understand what is expected of me in this course.

Printed Name

Date

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Signature

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Class Time:

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