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|----------------------------------|---------------------------------------------------------------------|----------------------|--------------------------------------------|
| Course Number/Section and Title: | MATH 2240-01: Statistics II | | |
| Semester and Year: | Spring 2020 | | |
| Course Meeting: | MWF | 10:20-11:15am | Roush 424 (Computer Lab on "Minitab days") |
| | Days | Time | Location |
| Credit Hours: | 3 | 3 | 0 |
| | Total Credit Hours | Lecture Credit Hours | Lab Credit Hours (if applicable) |
| Is this a Travel Course: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No | | |

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|----------------------------------------------------------------------|---------------------|-----------------------------------|--|
| Instructor: | Matthew McMullen | mmcmullen@otterbein.edu | |
| | First, Last | Email Address | |
| Towers 138 | (614) 823-1279 | faculty.otterbein.edu/mmcmullen | |
| Office Location/Room # | Office Phone Number | Course webpage (for problem sets) | |
| MWF 11:30am-12:30pm | | | |
| TR 8:50-9:50am | | | |
| Set Office Hours and Tutoring Hours (also available by appointment). | | | |

Course Catalog Description

A continuation of Statistics I. Statistical data analysis is emphasized involving in-depth study of regression, analysis of variance, analysis of categorical data, and non-parametric statistics (time permitting).

(Prerequisites: C- or better in MATH 1240.)

Course Objectives

Upon successful completion of the course, the student shall be able to:

1. Learn applications with a statistical package such as Minitab.
2. Understand and apply elementary experimental design and analysis using ANOVA including one-way, two-way, randomized block design, and models with interactions.
3. Apply multiple comparison procedures (e.g., Tukey's method) to do post hoc assessment after basic ANOVA.
4. Solve categorical data problems.
5. Formulate and create multiple regression models.

Program Learning Goals or Outcomes

1. Students have the ability to analyze, interpret, interrelate and synthesize data.
2. Students appreciate the role of mathematics in society and understand the ethical responsibilities of mathematicians.
3. Students recognize when a quantitative model may be useful and learn modeling as the art of applying math to the physical world.
4. Students recognize the relations among various branches of mathematics and appreciate the role of mathematics in other courses.

Required Texts and Ancillary Materials

The textbook we will be using is *Statistics*, 13th edition, by McClave and Sincich. We will also be using the statistical software Minitab (which is already on the campus computers) frequently throughout the semester.

Attendance and Participation Policy

You are expected to be present at all classes. If you have a conflict with any test, you must see me in advance. No make-up tests will be given for unexcused absences.

Method for determining course grade

Problem sets count towards 15% of your grade, midterms towards 50%, the final project towards 10%, and the final towards 25%. It is anticipated (but subject to change) that the letter grade assignments will be made on the following scale: A 93%, A- 90%, B+ 87%, B 83%, B- 80%, C+ 77%, C 73%, C- 70%, D+ 67%, D 60%, F below 60%.

Assignments/Tests and expectations for out-of-class work

We will have ten problem sets, two midterms, a final project, and a final exam.

Deadlines for submitting work

The problem sets will typically be due the week after they're assigned.

Final Exam Date and Time

Friday, May 1, 10:15am-12:15pm

Academic Honesty

All academic work should be your own. Academic dishonesty (plagiarism and cheating) may result in automatic failure of the assignment or the course itself, and you will be referred to the Academic Affairs Office for suspension or expulsion proceedings.

You are plagiarizing when you:

1. Copy material from a source without using quotation marks and proper citation.
2. Follow the movement of the source, substituting words and sentences but keeping its meaning, without citing it.
3. Lift phrases or terms from a source and embed them in your own prose without using quotation marks and proper citation.
4. Borrow ideas (that are not common knowledge) from a source without proper citation.
5. Turn in a paper wholly or partially written by someone else.

The complete statement on Plagiarism, Cheating and Dishonesty can be found in the [Campus Life Handbook](#), page 33, at the following web link: <http://www.otterbein.edu/public/CampusLife/HealthAndSafety/StudentConduct.aspx>.

Learning Differences

If you have a documented learning difference please contact Kera McClain Manley, the Disability Services Coordinator, to arrange for whatever assistance you need. The Disability Services is located in Room #13 on the second floor of the Library in the Academic Support Center. You are welcome to consult with me privately to discuss your specific needs. For more information, contact Kera at kmanley@otterbein.edu, 614-823-1618 or visit the Disability Services at the following web link:

<http://www.otterbein.edu/public/Academics/AcademicAffairsDivision/AcademicSupportCenter/DisabilityServices.aspx>.

Statement on Credit Hour Definition/Expectation for Student Work

For each credit hour of classroom or direct faculty instruction, students are expected to engage in two hours of out-of-class work (readings, homework, studying, project preparation, etc.). A three semester credit hour course requires six hours per week of out-of-class work.

Schedule (tentative)

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------------|--------------------------------------------------------------------|-----------------------------|----------------------------------|----------|-----------------------------------------------------------------|
| | Jan. 13 | Jan. 14 | Jan. 15 | Jan. 16 | Jan. 17 |
| Week 1 | Classes start Intro to course | X | Review (confidence intervals) | X | Minitab day (PS #1) |
| | Jan. 20 | Jan. 21 | Jan. 22 | Jan. 23 | Jan. 24 |
| Week 2 | MLK Day | X <i>Last day to add</i> | Review (hypothesis testing) | X | Minitab day (PS #2) |
| | Jan. 27 | Jan. 28 | Jan. 29 | Jan. 30 | Jan. 31 |
| Week 3 | 7.6 | X | 8.8 | X | Minitab day (PS #3) |
| | Feb. 3 | Feb. 4 | Feb. 5 | Feb. 6 | Feb. 7 |
| Week 4 | 13.1/Review (binomial distribution) | X | 13.2 | X | Minitab day (PS #4) |
| | Feb. 10 | Feb. 11 | Feb. 12 | Feb. 13 | Feb. 14 |
| Week 5 | 13.3 | X | 13.3 | X | <i>Last drop day w/o "W"</i> Minitab day (PS #5) |
| | Feb. 17 | Feb. 18 | Feb. 19 | Feb. 20 | Feb. 21 |
| Week 6 | 9.6 | X | Review (for Test #1) | X | Test #1 |
| | Feb. 24 | Feb. 25 | Feb. 26 | Feb. 27 | Feb. 28 |
| Week 7 | 10.1 | X | 10.2 | X | Minitab day (PS #6) |
| | Mar. 2 | Mar. 3 | Mar. 4 | Mar. 5 | Mar. 6 |
| Week 8 | Spring Break | X | Spring Break | X | Spring Break |
| | Mar. 9 | Mar. 10 | Mar. 11 | Mar. 12 | Mar. 13 |
| Week 9 | 10.3 | X | 10.4 | X | Minitab day (PS #7) |
| | Mar. 16 | Mar. 17 | Mar. 18 | Mar. 19 | Mar. 20 |
| Week 10 | 10.5` | X | 10.5 | X | Minitab day (PS #8) |
| | Mar. 23 | Mar. 24 | Mar. 25 | Mar. 26 | Mar. 27 |
| Week 11 | <i>Last day to drop</i> 11.1/11.2/Review (linear regression) | X | Review (for Test #2) | X | Test #2 |
| | Mar. 30 | Mar. 31 | Apr. 1 | Apr. 2 | Apr. 3 |
| Week 12 | 11.3 and 11.4 | X | 11.5 | X | No class |
| | Apr. 6 | Apr. 7 | Apr. 8 | Apr. 9 | Apr. 10 |
| Week 13 | 11.6/11.7 | X | Minitab day (PS #9) | X | Good Friday |
| | Apr. 13 | Apr. 14 | Apr. 15 | Apr. 16 | Apr. 17 |
| Week 14 | 12.1-12.3 | X | 12.4 | X | 12.5 and 12.6 |
| | Apr. 20 | Apr. 21 | Apr. 22 | Apr. 23 | Apr. 24 |
| Week 15 | Minitab Day (PS #10) | X | Minitab day (Work on project) | X | <i>Last day of classes</i> Final review Final project due |
| | Apr. 27 | Apr. 28 | Apr. 29 | Apr. 30 | May 1 |
| Finals! | X | X | X | X | Final Exam 10:15am-12:15pm |