Instructor: Monica Degnan
Email: mldutzke@iastate.edu
Office: Snedecor Hall 3207 (also often in 3222 when on campus)
Office Hours: MR 9:00 to 10:00 pm [VIRTUAL] or by appointment
NOTE: I will not be on campus for much of the summer, so the best option is to contact me by email.

TA/Grader: Brenna Curley
Email: curleyb@iastate.edu
Office: 3409 Snedecor Hall
Office Hours: TW 1:00 – 2:00 pm [VIRTUAL] or by appointment

Catalog description:
(3-2) Cr. 4. F.S.S. Prereq: 101 or 104 or 105 or 226. Graduate students without an equivalent course should contact the department. Methods of analyzing and interpreting experimental and survey data. Statistical concepts and models; estimation; hypothesis tests with continuous and discrete data; simple and multiple linear regression and correlation; introduction to analysis of variance. Non-major graduate credit.

Required Course Materials:
- Two textbooks are combined into one custom course package this semester which includes an access code for the learning management system we will be using this semester. This can ONLY be purchased through the University Bookstore (http://www.isubookstore.com/CourseMaterials.aspx?src=2). You must purchase this custom textbook package for Stat 401 XW this semester. This discounted custom package includes the ActivStats software, JMP Study card, MyLabsPlus card, e-book, and printed textbook. ISBN: 9781256722724.

The custom package contains selected chapters from the following textbooks:

- NOTE: Because the text is included in the “e-book”, one may purchase the MYMATHLAB PLUS ACCESS CODE without the rest of the textbook. The one thing I will say is that the online book can often be quite slow and frustrating to read. You will be needing your textbook both for informational (reading) as well as for homework assignments, so keep this in mind.

All other course materials are available on Blackboard Learn

Learning Outcomes for the Course
In this course you will learn to master data analysis techniques, computer skills, and statistical reasoning abilities. The course is designed to help you develop the capability of critical (research) thinking using real-life cases. To facilitate this process you will be called upon to perform a variety of course-related tasks.

The primary learning outcomes you will develop and the tasks you will be asked to perform to develop these outcomes are to:

1. Build on prior knowledge of statistics
   a. Students will pass the chapter preview where assigned
      These will cover basic descriptive statistics and graphing, the normal distribution, data collection and elementary probability, introduction to statistical inference, estimation and hypothesis testing, linear regression and correlation, and analysis of variance (ANOVA)

2. Demonstrate competence in techniques presented in class
   a. Students will complete statistical lab work related to techniques
   b. Student will demonstrate skills competency on exams
c. Students will apply these skills creatively in statistical contexts
   Techniques to master:
   • Exploratory data analysis, including graphing
   • Statistical inference, estimation, and hypothesis testing
   • Statistical modeling, ANOVA, and correlation

3. Develop statistical reasoning skills
   a. Students will complete homework and exams solving statistical problems
   b. Students will complete exams involving applications of statistical reasoning

4. Apply statistical reasoning skills to solve a broad variety of problems and judge the value of statistical studies
   a. Students will develop the ability to define statistical problems clearly on homework and exams
   b. Students will be able to gather relevant information to perform exploratory data analysis on homework and exams
   c. Students will be able to identify assumptions that influence the solution of problems on homework and exams
   d. Students will learn to organize and prioritize information, and to develop reasonable arguments, on homework and exams
   e. Students will be able to communicate these results in a clear, concise, and creative manner on homework and exams

**Lectures**

Video lectures are available on Blackboard Learn. They are organized by the material corresponding to each lab lecture. To view the lecture video, click on the arrow on the bottom left-hand side of the screen (see below). If you click on the word 'vimeo" you may be redirected to another site.

**Lab Sessions (Also pre-recorded)**

Watching the pre-recorded labs is critical to your success in this course. Labs will provide example problems and instruction on JMP Statistical Software (see Computer Software below). Homework problems for this course will be assigned through the Lab Assignments. Lab sessions will be made available on Blackboard learn. Lab videos can be found here:

- Log into Blackboard Learn
- Navigate to this course: STAT 401 Section-XW (Summer 2014)
- On the side tool bar, click on JMP Labs & Lab Recordings
- Choose: Pre-recorded Labs (Lecture Videos)
- From here choose the lab lecture that you want to watch!

Lab assignments will be posted on Blackboard the morning of each lab (see attached calendar). They will normally be due by midnight (11:59pm) on the evening of the next lab. Please refer to Lab Guidelines and Objectives on Blackboard Learn/JMP Labs & Lab Recordings/Lab Information for more information on submission policy. Solutions turned in late without advance permission normally will not be graded.

Since previously recorded lab lectures were originally live, some of the material about exams and due dates will not be applicable. Please contact me (mklutzke@iastate.edu) if there is any question about what is or is not applicable.

**Computer Software**

We will make use of JMP statistical software this semester for course lab work.
- You may download a free copy to your computer from: (http://www.stat.iastate.edu/resources/software/jmp/) or Blackboard Learn/JMP Labs/Lab Information
- There is also a technology card available on Blackboard Learn that will assist you in learning JMP.
- The lab sessions, lab assignments, and lab notes contain relevant information about how to use this software.
- You may also use other common statistical software packages to solve problems in this book, but JMP is the one we will be teaching.
Quick Guide for JMP 11
Here is a good reference for JMP to print out: http://www.jmp.com/academic/pdf/jmp11_quick_guide.pdf

MyCourses (Homework)
MyCourses is a learning management system that we will be using this semester for homework. The access code for this is included in your textbook package or separately if you choose to opt out of getting the tangible textbook. You can choose to purchase only the access code, as the textbook is included in an online format, but you do not need to purchase both. If you choose the paper textbook, the access code COMES WITH. Please see below for directions on how to enroll in MyCourses.

MyCourses has a statistical software package named Stat Crunch. You are welcome to explore it; however, we will mainly use JMP in this class. MyCourses also has an electronic copy of the DeVeaux textbook material.

For technical problems with MyCourses, contact Leah Newman
If you have difficulty with MyCourses, Leah Newman, who works as a Pearson Publisher’s Representative, is available to help. Carly can be reached via email at leah.newman@pearson.com. She is located in West Des Moines, and visits campus regularly. Please feel free to contact Carly about any technical problems with MyCourses.

MyCourses Course Enrollment Instructions
MyCourses was chosen to help you succeed in this course. With rich media, an electronic textbook, and much more, MyCourses provides resources that will help you master even the most difficult concepts and learn statistics with greater facility.

Instructions to login to MyCourses:
- Step 2. Sign in using your netid and last four digits of your student ID as username and password.
- Step 3. When you are logged in, select the course from the Course List.
- Step 4. Click on Temporary Access to read the information on access code.
- Step 5. Explore the course. Start to work on your MyCourses Homework 0.

About the Exams
The exams will be the main assessment for this class. They will be delivered via Blackboard Learn. You can find the exams content by clicking the "Exam" tab on the main menu. You will need to email your exam answers as a Word or pdf attachment before due date to Professor Shelley, at mshelley@iastate.edu.

Grade Breakdown:

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<tr>
<th>Assignment Type</th>
<th>Grade Percentage</th>
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</thead>
<tbody>
<tr>
<td>MyCourses Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Lab exercises (homework)</td>
<td>35%</td>
</tr>
<tr>
<td>Midterm</td>
<td>25%</td>
</tr>
<tr>
<td>Project paper/final exam</td>
<td>25%</td>
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</table>

Generally, but depending on the distribution of point totals, a point total of 93 (93%) or above is required for an A- or above. However this is up to the discretion of the instructor and may be different depending on overall class performance.

Course Policies
- Understanding is a process that forces you to uncover the material. The course instructor and teaching assistant is available to help you with the process, but you must provide the initiative if you want to understand and retain the material.
- You will be held to a high standard of ethics and professionalism.
- You are expected to grow in your ability to apply statistical techniques to real-life problems; your efforts will be rewarded accordingly (see number 4 above on the learning outcomes for the course).
- Current grade information will be displayed on Blackboard Learn. Please check within a week of posting if you have questions about a grade.
- Please check the Blackboard Learn site frequently. Please communicate via email with the course instructor or teaching assistant whenever possible, so there is an official record of what we have discussed.
- As part of the process of formative assessment, we will be requesting your reactions and perceptions regarding the course throughout the semester. Please feel free to provide any and all suggestions for improvement.
- Formal annual course evaluations are conducted online at the end of the semester. These online evaluations are an integral part of the course and need to be completed by the posted deadline so your views can be taken into consideration.

Technical Support for Blackboard Learn

Browser Tuning
You can test your browser to see if your machine has all the required programs to run Blackboard Learn properly. You can find “Test Your Browser” link on the main page of your Blackboard Learn site.
**Contact Information**
If you experience a problem that you cannot resolve through Blackboard Learn tutorials, you can contact Engineering-LAS Online Learning Technical Support via email at elotech@iastate.edu or call them at 515-294-1876 for more information.

**Online Learning Tips**
If you are new to online learning you will want to take a few minutes to browse ISU’s e-Learner website. You will also find useful tips for succeeding in online courses at the Illinois Online Network. If you are new to Blackboard Learn, you will want to explore Blackboard Learn’s support site for students. You can either search for your question or browse through FAQs.

**How to be successful in this class**
- Make sure you make a note of the due dates so that you do not miss a major assignment or an exam.
- Make sure you do all the assigned readings and watch the videos. These readings and videos will be the main source of information for the course.
- If you have any questions, make sure you contact the instructor or post your question to the "Help Forum." That "Help Forum" is for your class communication, which will help you stay connected to your classmates and receive answers for your questions.
- You can also read the following link about how to be successful in this class:
  - [Successful Strategies in Online Education](#)
  - [Are Online Courses for Me?](#)
  - [Are Distance-Learning Courses for Me?](#)

**Academic Dishonesty**
The class will follow Iowa State University’s policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office. [http://www.dso.iastate.edu/ja/academic/misconduct.html](http://www.dso.iastate.edu/ja/academic/misconduct.html)

**Disability Accommodation**
Iowa State University complies with the Americans with Disabilities Act and Sect 504 of the Rehabilitation Act. If you have a disability and anticipate needing accommodations in this course, please contact Professor Shelley to set up a meeting within the first two weeks of the semester or as soon as you become aware of your need. Before meeting with Professor Shelley, you will need to obtain a Student Academic Accommodation Request (SAAR) form with recommendations for accommodations from the Disability Resources Office, located in Room 1076 on the main floor of the Student Services Building. Their telephone number is 515-294-7220 or email disabilityresources@iastate.edu. Retroactive requests for accommodations will not be honored.

**Harassment and Discrimination**
Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, ethnicity, sex (including sexual assault), pregnancy, color, religion, national origin, physical or mental disability, age, marital status, sexual orientation, gender identity, genetic information, or status as a U.S. veteran. Any student who has concerns about such behavior should contact his/her instructor, Student Assistance at 515-294-1020 or email dso-sas@iastate.edu, or the Office of Equal Opportunity and Compliance at 515-294-7612.

**Religious Accommodation**
If an academic or work requirement conflicts with your religious practices and/or observances, you may request reasonable accommodations. Your request must be in writing, and your instructor or supervisor will review the request. You or your instructor may also seek assistance from the Dean of Students Office or the Office of Equal Opportunity and Compliance.

**Contact Information**
If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.
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<thead>
<tr>
<th>Lab Number</th>
<th>Material Covered</th>
<th>Book Chapters</th>
<th>Chapter Topic</th>
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<tbody>
<tr>
<td>Lab 1</td>
<td>DeVeaux Chapter 1 DeVeaux Chapter 2 Intro to MyLabsPlus Intro to JMP</td>
<td>DeVeaux 1, 2</td>
<td>Introduction to Statistics Hands-on with Data Visualization Data Analysis Software Inputting My Data (JMP)</td>
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<td>Lab 2</td>
<td>DeVeaux Chapter 3 DeVeaux Chapter 4</td>
<td>DeVeaux 3, 4</td>
<td>Categorical Data Analysis Quantitative Data Analysis</td>
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<td>Lab 3</td>
<td>DeVeaux Chapter 5 DeVeaux Chapter 6</td>
<td>DeVeaux 5, 6</td>
<td>Normal Distribution Comparing Distributions</td>
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<td>Lab 4</td>
<td>DeVeaux Chapter 7 DeVeaux Chapter 8</td>
<td>DeVeaux 7, 8</td>
<td>Scatter Plot and Correlation Linear Regression</td>
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<tr>
<td>Lab 5</td>
<td>DeVeaux Chapter 9 DeVeaux Chapter 10 Introduction to Probability</td>
<td>DeVeaux 9, 10</td>
<td>Regression Wisdom Re-Expressing Data (transformations)</td>
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<td>Lab 6</td>
<td>Finish Intro to Probability DeVeaux Chapter 18 DeVeaux Chapter 19 (Part I)</td>
<td>DeVeaux 18, 19</td>
<td>Sampling Distributions Hypothesis Testing Confidence Intervals</td>
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<tr>
<td>Lab 7</td>
<td>DeVeaux Chapter 19 (Part II) DeVeaux Chapter 20 DeVeaux Chapter 21 (Part I)</td>
<td>DeVeaux 19, 20, 21</td>
<td>Hypothesis Testing and Confidence Intervals for Proportions Type I/Type II Errors &amp; Power</td>
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<tr>
<td>Midterm Exam</td>
<td>DeVeaux Chapters 1 – 10, 18, 19, 20</td>
<td>Due Friday June 13th by 11:59 pm</td>
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<td>Lab 8</td>
<td>DeVeaux Chapter 21 (Part II) DeVeaux Chapter 22 DeVeaux Chapter 23</td>
<td>DeVeaux 21, 22, 23</td>
<td>Comparing Two Proportions Inferences About Means</td>
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<td>Lab 9</td>
<td>DeVeaux Chapter 24 DeVeaux Chapter 25 DeVeaux Chapter 26</td>
<td>DeVeaux 24, 25, 26</td>
<td>Comparing Means Paired Samples and Blocks Comparing Counts</td>
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<tr>
<td>Lab 10</td>
<td>DeVeaux Chapter 27 DeVeaux Chapter 28</td>
<td>DeVeaux 27, 28</td>
<td>Inferences for Regression Analysis of Variance (ANOVA)</td>
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<td>Lab 11</td>
<td>DeVeaux Chapter 29 DeVeaux Chapter 30</td>
<td>DeVeaux 29, 30</td>
<td>Multifactor ANOVA Multiple Regression</td>
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<td>Lab 12</td>
<td>DeVeaux Chapter 31</td>
<td>DeVeaux 31 A&amp;F Ch. 12</td>
<td>Multiple Regression and Correlation Influential Points Collinearity</td>
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<td>Lab 13</td>
<td>Review of Linear Modeling</td>
<td>Review: A&amp;F Chs. 8, 9, 10</td>
<td>Linear Regression (Simple and Multiple Regression) Review Partial F-test</td>
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<td>Lab 14</td>
<td>Analysis of Covariance (ANCOVA)</td>
<td>Review: A&amp;F Chs. 11, 13, 14</td>
<td>Analysis of Covariance (ANCOVA)</td>
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<td>Final Exam</td>
<td>Comprehensive Exam</td>
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