STEM Division

MATH 1342-48011, 3 Credit Hours

Co-Requisite
Elementary Statistical Methods

[Fall 2019]

Classes are Mondays and Wednesdays

Classes meet 11:00 a.m. to 12:20 p.m.
Room C 293
Classes meet 12:30 p.m. to 01:50 p.m.
Room C 313

Instructor:
Krishna Acharya

Contact Information:
Office: C 236
Office Hours: M W 2:00 pm – 3: 00 pm and by an appointment
Phone: 972-391-1047
Email Address: krishnaacharya@dcccd.edu

Course Description
Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended. (3 Lec.)

Corequisite/Concurrent
This is a corequisite course and requires continuous concurrent enrollment with DMAT 0317.

Textbook and Other Course Materials
• **Textbook:** *Statistics: Informed Decisions Using Data* by Michael Sullivan, Pearson (5th Edition) with Integrated Review, 2016 ISBN: 9780134856254. Please note that in this section of MATH 1342, My Stat Lab access is required. You may also be required to use the associated Integrated Review Materials in your DMAT 0317 course. My Stat Lab access is not included with the purchase of a used book, and may not be included with the purchase of a new book. Therefore, use caution when purchasing your course materials.

• **Calculator:** Students are required to have access to a TI-83 or TI-84 calculator. Instructions on how to use technology to apply concepts are at the end of relevant sections in the textbook under the heading “Technology Step-by-Step.”

• **My Stat Lab** - Microsoft Windows 7 and 8 users should use one of the following browsers with My Stat Lab courses-- Chrome, Firefox or Internet Explorer 10 and 9. Click [here](#) for other system requirements.

### Student Learning Outcomes
After completing this course, the student should be able to:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

### Core Objectives
MATH 1342 develops the following Core Objectives:

1. **Critical Thinking** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

2. **Communication** - to include effective development, interpretation and expression of ideas through written and visual communication.

3. **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

### Core Objective Development Statements:
MATH 1342 develops **Critical Thinking**, **Communication**, and **Empirical and Quantitative Skills** by requiring students to collect, analyze, present and interpret data and probability.

### Grading Policy:
HW 30%, Final 30%, 3 tests/drop one 40% >

### Grading Rationale:
90—100 A, 80-90 B, 70-80 C, 60-70 D & below 60 F >

### Final Examination:
A comprehensive, departmental final examination, which will represent at least 25% of the class grade, will be administered in all Introductory Statistics classes.

### Policy on Missed Tests and Assignments:
[contact instructor]

### Attendance Policy:
You are expected to regularly attend all classes in which you are enrolled. Students have the responsibility to attend class and to consult with the instructor when an absence occurs.
Drop Date:
Last date to drop with a grade of “W” is 11/27/2019.

Institutional Policies:
Institutional policies relating to this course can be accessed from the following link:
https://www.eastfieldcollege.edu/syllabipolicies

Additional Resources:
**Math tutoring is available in the second floor of the library (L200). Students are encouraged to take advantage of this service for additional help in their course work. Additionally, students can check-out TI – 84 calculators on a daily basis from the library.

COURSE COVERAGE:

<table>
<thead>
<tr>
<th>Sections</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 – 1.6</td>
<td>Practices of statistics, Observational and experimental studies, Sampling, The design of an experiment</td>
</tr>
<tr>
<td>2.1 – 2.4</td>
<td>Qualitative and quantitative data, Time-Series data displays, Misrepresentation of data</td>
</tr>
<tr>
<td>3.1 – 3.5, 4.1 - 4.2</td>
<td>Measures of central tendency, Measures of dispersion, Grouped data, Measures of position, Outliers, Scatter Diagrams, Correlation, Regression</td>
</tr>
<tr>
<td>5.1 - 5.3</td>
<td>Probability rules, Addition and complement rules, Independence and multiplication rules</td>
</tr>
<tr>
<td>6.1 - 6.2; 7.1 - 7.3</td>
<td>Discrete random variables, Binomial probability distribution, Normal distribution, Standard normal distribution, Applications, Assessing normality</td>
</tr>
<tr>
<td>8.1 – 8.2; 9.1 - 9.2</td>
<td>Distribution of the sample mean and sample proportion, Estimating a population proportion and mean</td>
</tr>
<tr>
<td>10.1 - 10.3, 13.1</td>
<td>Language of hypothesis testing, Hypothesis testing for a population proportion and mean, ANOVA</td>
</tr>
</tbody>
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SYLLABUS REVISION:
The guideline in this syllabus may be changed, deleted, or amended any time by the instructor. The attached course outline is intended as an aid in helping you know your responsibilities for the semester. It is possible that some changes in the course outline or class policies will be made during the semester.

Revised: 08/02/2018
## Course Pacing Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>HW in My Stat Lab (due by following class meeting)</th>
</tr>
</thead>
</table>
| 1    | Syllabus  
§1.1 Introduction to the Practice of Statistics  
§1.2 Observational Studies versus Designed Experiments | Orientation  
Section 1.1 HW  
Section 1.2 HW |
| 2    | §1.3 Simple Random Sampling  
§1.4 Other Effective Sampling Methods | Section 1.3 HW  
Section 1.4 HW |
| 3    | §1.5 Bias in Sampling  
§1.6 The Design of Experiments | Section 1.5 HW  
Section 1.6 HW |
| 4    | 1.IR8: Language Used in Modeling  
§2.1 Organizing Qualitative Data | Section 1.IR8 HW  
Section 2.1 HW |
| 5    | §2.2 Organizing Quantitative Data: The Popular Displays  
§2.3 Additional Displays of Quantitative Data  
§2.4 Graphical Misrepresentations of Data | Section 2.2 HW  
Section 2.3 HW  
Section 2.4 HW |
| 6    | Test 1 Review (Chapters 1 and 2 with 1.IR-2.IR)  
Test 1 | Review for Test 1 |
| 7    | §3.1 Measures of Central Tendency  
§3.2 Measures of Dispersion | Section 3.1 HW  
Section 3.2 HW |
| 8    | §3.4 Measures of Position and Outliers  
§3.5 Measures of Dispersion | Section 3.4 HW  
Section 3.5 HW |
|   | §4.1 Scatter Diagrams and Correlation  
|   | §4.2 Least-Squares Regression       | Section 4.1 HW  
|   | §5.2 The Addition Rule and Complements  
|   | §5.3 Independence and the Multiplication Rule | Section 5.2 HW  
|   | §6.2 The Binomial Probability Distribution  
|   | §7.1 Properties of the Normal Distribution | Section 6.2 HW  
|   | §8.1 Distribution of The Sample Mean  
|   | §8.2 Distribution of The Sample Proportion | Section 8.1 HW  
|   | §9.1 Estimating a Population Proportion  
|   | §9.2 Estimating a Population Mean | Section 9.1 HW  
|   | §10.2 Hypothesis Tests for a Population Proportion  
|   | §10.3 Hypothesis Tests for a Population Mean | Section 10.2 HW  
|   | §13.1 Comparing Three or More Means (One-Way ANOVA)  
|   | Final Exam Review | Section 13.1 HW  
|   | Final Exam (Chapters 1 – 10 & 13) |  

*Note that Sections 3.3, 5.1, 6.1, 7.2, 7.3, and 10.1 will be covered in DMAT 0317.*