

# STA2023 – Introduction to Statistics 1 (Online)

## Syllabus – Spring 2020

### Instructor Information

Instructor: Tamal Ghosh

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Office: Griffin Floyd 115A

### Teaching Assistant Information

Suman Bhattacharya, email: [sumankbhattachar@ufl.edu](mailto:sumankbhattachar@ufl.edu)

Mirajul Islam, email: [mirajulislam@ufl.edu](mailto:mirajulislam@ufl.edu)

Melis Balta

Kaitlyn Arnott

### Online Free Tutoring (Office Hours)

Below is the schedule of online office hours for every week except holidays.

Monday	Tuesday	Wednesday	Wednesday	Wednesday	Thursday
8:30 am to 9:20 am	12:50 pm to 1:40 pm	8:30 am to 9:20 am	4:05 pm to 4:55 pm	5:10 pm to 6:00 pm	12:50 pm to 1:40 pm
Kaitlyn	Mirajul	Kaitlyn	Melis	Melis	Mirajul

- Where: eLearning conferences aka Zoom Conference
- We will work out three to five problems on the material related to the module and then take questions from those in attendance.
- You can also send me or TA's questions prior to the session to be included. This will be recorded for later viewing.
- After we finish going over the problems, if there is no one in attendance we will close the session.

### Layout of the Course

The course is setup on a modular system.

- A module will be due twice a week – a total of 24 modules in the course.
- Each MODULE will have the following components.
  - OVERVIEW page. This explains what material is covered in that module including pages to read out of the textbook and suggested homework problems.
  - LESSON. The lesson includes several 5 - 10 minute videos with questions that reinforce the material. For these questions, you can re-do the questions until you get them correct. These do not count towards your grade.
  - QUIZ. For each quiz, you will have three attempts, the highest attempt counts. This is worth 10 points.

- EXTRA EXAMPLES OR EXTRA RESOURCES. This is a list of additional support videos and handouts or instructions.

## Who to Contact for Help

### Who do you contact if you have a problem?

Problem	Contact
Questions about grades or questions about actual exam questions.	Tamal Ghosh through email or through Canvas messaging.
Course Material – any questions from lessons, practice materials, projects etc. (any course material questions that you have about material in which you are not proctored).	Please post your question in the Canvas discussion board. Your question can be answered by other students, teaching assistants or the instructor.
Technical problem with videos or with quiz functions or other Canvas functionality.	UF help desk at 352-392-HELP
Questions about lessons and other technical questions.	Post in the Canvas discussion board.

## Course Material by Week

Week 1	Getting to Know the Course
Week 2	What is Statistics?
Week 3	Exploring Data with Graphs; Measures of Center, Variability and Position
Week 4	Exploring Relationships between Two Variables; Simple Linear Regression
Week 5	Experimental and Survey Design; Probability Rules
Week 6	Normal Distributions; Binomial Distribution
Week 7	<b>Exam 1</b> ; Sampling Distribution of the Sample Proportion
Week 8	Sampling Distribution of the Sample Mean; More Sampling Distributions
Week 9	Confidence Interval for the Population Proportion and Population Mean
Week 10	Sample Size Determination and More about Confidence Intervals; Significance Test for the Population Proportion
Week 11	Significance Test for the Population Mean
Week 12	<b>Exam 2</b> ; Additional Concepts about Significance Tests
Week 13	Comparing Two Independent Proportions and Two Independent Means
Week 14	Comparing Means of Dependent Samples
Week 15	McNemar's Test and Permutation Tests
Week 16	<b>Exam 3</b>

## Required Materials

**Lecture Notes** – These are available two different ways. You can print them from the course homepage in Canvas ([You Print version](#)), or you can purchase the Lab Workbook titled **Statistics: The Art and Science of Learning from Data by Megan Mocko and Maria Ripol, 4th Edition, 2017**, Pearson ISBN: 9780133860894. If you purchase the Lab Workbook you will need to print out a small 12 page supplement.

**Scientific Calculator** – you will need a calculator with some basic statistical functions including mean and standard deviation. Many inexpensive calculators (around \$15) have these functions; check the manual or look for the following symbols:  $\bar{x}$  and either  $s$  or  $\sigma_{n-1}$ . The TI-36XPro has these functions. Graphing calculator will NOT BE ALLOWED on exams. In exam you can use only non-graphing scientific calculator with mean and standard deviation functions. Check the manual or look for the symbols  $\bar{x}$  and  $s$  or  $\sigma$ . [Here](#) is a list of some "nongraphing" scientific calculators for reference.

**Textbook** – STA2023 for IncludED (Agresti 4e 2017), ISBN: 1323590315, ISBN-13: 9781323590317, Series: MyLab Statistics. It is located on the left side bar under the “MyLab and Mastering” tab.

**Reliable Computer** – that meets the requirements for online proctored exams by ProctorU.

**Statistical Software Packages** – for the projects you will need to use a statistical software package. You can chose between three packages: ArtofStat.com (free online), Minitab (free in UF Apps) or Statcrunch.com (\$13.75 for 6 months). Some of the quizzes will also ask you to access ArtofStat.com.

## Course Assessment

Assessment	Percent of Grade
Exam 1	22%
Exam 2	22%
Exam 3	22%
Mini Projects	17%
Quizzes	17%

## Possible Grades for the Course

Letter Grade	Grade Points	Percentage of Points Needed
A	4.00	92 to 100%
A-	3.67	88.50 to 91.99%
B+	3.33	84.50 to 88.49%
B	3.00	80.00 to 84.49%
B-	2.67	78.50 to 79.99%
C+	2.33	74.50 to 78.49%
C	2.00	67.50 to 74.49%
D	1.00	60.00 to 67.49%
E	0.00	Below 60 %

Please see the following webpage for UF grading policies for assigning grade points:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

You must have a **grade of a C** to get general education credit for this course.

## Course Website

We will be using the course management system, Canvas (elearning.ufl.edu). In Canvas **you will be able to:** complete the lessons in the course, find any updates to the Syllabus, watch the lectures as streaming video as you complete the lessons, take the online quizzes, turn in portions of the project using the assignment tool, ask questions in the discussion board and check your grade. For any technical problems with E-Learning, please contact 392-HELP or [learning-support@ufl.edu](mailto:learning-support@ufl.edu).

## Lessons (similar to the idea of lectures with clicker questions)

You will be completing about two lessons each week. The lesson will include text and video about the day's assigned material. As you work through the material, you will be filling in the Lab Workbook or You Print pages. You should expect this lesson and the related quiz assignment to take you about 2 to 3 hours per lesson; however, this time may vary from student to student.

## Quizzes

It is important to practice statistics in order to learn it.

- You should complete an online quiz in each module.
- Some of these quizzes will have questions around a theme whereas others will have more independent questions.
- There are a total of about 26 assignments available. The three lowest quiz scores will be dropped.

- There is a quiz for each module (24 total modules) and the midterm and final course survey will also count as a quiz. You get the full 10 points for completion of the two surveys.
- Quizzes are worth 10 points each.
- Quizzes are due at midnight in the Eastern Time Zone.

### Mini Projects

In this course, there will be three individual mini projects. The Island mini project brings together all aspects of the course: data collection, experimental design and data analysis. More information and rubrics are provided in the course management system. The Island Project is worth 17% of your grade. There will be a 25% late penalty per day and not accepted after the 4th day. It is your responsibility to make sure that the assignment is uploaded into Canvas. The project is due at midnight in the Eastern Time Zone.

### Exams

There will be **three** online proctored exams. The exam will be multiple choice, drop down box and matching. Exams will cover a larger amount of material than the quizzes and will also place more emphasis in the understanding of concepts and ideas behind the formulas. Academic dishonesty on any exam will result in a grade of zero on that exam. For the exam, you will be allowed to have one blank sheet of paper and a scientific calculator. Using a cell phone during the exam is considered an honor code violation and will be reported to the honor court. Formula Sheets, and appropriate tables (z and t tables) will also be available as a link in the instructions of the exam. You can find a link to the formula sheets under Module 1: Important Resource Formula Sheets for Exam. Exams are not dropped. There are not retakes on exams. There are no breaks during the exam. Leaving the proctored area during an exam is also considered an honor violation.

### Online Exam Dates

Exam	Date	Time	Chapters in Book	Handbook Pages
<b>Exam 1</b>	Monday, February 17 (7am to 9pm start time) Must finish by midnight	Exam Length: 2 hrs.	Ch. 1 – Ch. 6 Sec. 3	You Print: 1-53 LB: 1-48
<b>Exam 2</b>	Monday, March 30 (7am to 9pm start time) Must finish by midnight	Exam Length: 2 hrs.	Ch. 7 – Ch. 9 Sec. 3	You Print: 54-92 LB: 49-87
<b>Exam 3</b>	Wednesday, April 22 (7am to 9pm start time) Must finish by midnight	Exam Length: 2 hrs.	Ch. 9 Sec. 4 – Ch. 10	You Print: 93-127 LB: 88-121

## Makeup Exam Policy

Every effort should be made to take the exam during the open exam period. Only extreme situations will warrant a makeup exam. Contact the instructor prior to the exam - as soon as you realize you will be unable to take the test at the scheduled time. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite for scheduling a makeup exam under such extenuating circumstances. The makeup exams will be mostly multiple choice with some short answer. There are not retakes on the exam, even if you were feeling badly during the exam. If you are feeling badly, you need to contact the instructor before the exam and provide a doctor's note.

If you have an emergency on the day of the exam, the instructor must be contacted by midnight of the day of the exam via email.

To make arrangements for a makeup exam: Contact the instructor at [tamalg@ufl.edu](mailto:tamalg@ufl.edu). Makeup exams will cover the same material as the regularly scheduled exam, but will not necessarily be in multiple choice formats.

## Pre-Exam Checklist

- Go to ProctorU's FAQ: <http://proctoru.com/faq.php>
- Test out your equipment: <http://www.proctoru.com/testitout/>
- Be sure that you are in a well-lit room – must be daylight quality.
- Be sure to have your photo id ready.
- Be sure to bring a reflective surface such as a mirror, CD or DVD.

## ProctorU Information Handout

You will be taking your exam through an online proctoring company. I have posted their information here for your convenience.

## What We Do

ProctorU is a revolutionary new service that allows students to complete their assessment at any location while still ensuring the academic integrity of the exam for the institution. Using almost any web cam and computer, you can take exams at home, at work, or anywhere you have internet access.

## Preparing for Your Exam

You will be connected to a live person during your exam that will be there to guide you through the process and assist with any technical problems. If you have any questions, please call our proctor line at 205-870-8122.

## Appointments

Appointments are required to use ProctorU and all appointments need to be made at least 72 hours in advance. If you register prior to 72 hours before the exam, there will not be an additional fee. Reservations made within 72 hours of your exam are subject to a \$5 late reservation fee. There is also a “Take it Now” option that does not require prior reservation. However, it will cost you more money and there is a risk that an appointment space may not be available. You will need to make an account first if you have not already – go to <https://www.proctoru.com/resources/test-takers/live/> and then select create an account. To make an appointment, simply create an account at <http://go.proctoru.com>, log in, click on the “new exam” link and select the exam, date, and time you desire. You will receive a confirmation email of your reservations at the email address that you provided to ProctorU.

## Procedure

- Plan ahead for your session.
- Make sure you have a quiet, private location in which to take the test.
- The area and room around your computer will be scanned using a web cam prior to your exam, so all non-authorized materials should be put away and the area should be clutter-free.
- You will also be required to show picture identification to your proctor at the time of your exam. Approved forms of identification include, but are not limited to, a driver’s license, military identification card, passport, or school-issued identification card.
- No breaks are allowed during your testing session and cell phones and other devices will not be permitted in the testing area.
- No other people are allowed in the area in which the test is being taken.
- Any unauthorized notes or other attempts to cheat will abort the test session and will be reported to your instructor.
- At the date and time of your appointment, return to <http://go.proctoru.com>, log in, and a message will appear saying, “You have an exam. Click here to begin.” Click on this button and it will automatically take you to the proctor page. Fill out your personal information and hit submit. You will then be directed to a screen which will connect you to your proctor. Just follow the steps on the screen and a proctor will be connected with you shortly. Once connected, your designated proctor will walk you through the set up process and you will log into your testing portal. Your proctor will also supply the password for your examination. Your exam time will begin when the proctor enters the examination password on your screen. If you have any problems connecting, please call ProctorU at 205-870-8122. Should you not be able to reach ProctorU via telephone you can email [help@proctoru.com](mailto:help@proctoru.com). If you have scheduled an exam and you are late, your proctor will attempt to call you at the phone number you provided when you scheduled your exam. Should there be any UF login issues at the time of your scheduled exam your proctor will contact the course instructor or course coordinator and you will be able to reschedule your exam if necessary.
- You may not take the exam at a café, on a plane, train or other public place.
- Make sure that your laptop is plugged in before starting the exam.

## Suggested Homework

Suggested homework problems from the textbook can be found listed under each module page.

## Statistical Software Packages

**Artofstat.com** is also an online statistical software package that accompanies our book. It is not required that you have Mynstatlab.com to use it. It is free to use.

**Minitab** is a statistical software package available through UF APPS. See more information here: <https://info.apps.ufl.edu/>.

**StatCrunch** is an online statistical software package that comes with the MyStatLab access code. You can also purchase it through the website – Statcrunch.com for 6 months for \$13.50. The data sets from the textbook are automatically entered.

## Online Free Tutoring

- Where: Canvas conferences – on the left sidebar of the course.
- Multiple times on Wednesday and Friday see canvas homepage for a schedule.
- The TA or the instructor will work out three to five problems on the material related to the module and then take questions from those in attendance.
- You can also send the instructor or TA questions prior to the session to be included. This will be recorded for later viewing.
- After the TA or instructor has finished going over the three problems, if there is no one in attendance they will close the session.

## Question and Answer Discussion Board

We will be using the Canvas discussion board for questions. Please try to post questions with an appropriate heading, such as “lesson 1 page 9 question1” or “Mini Project Question 2” or “Interpreting R-squared”. You are able to ask questions about lessons, videos, lesson quizzes, and homework questions. Please make sure that you don’t select that respondents have to respond before seeing content.

DO NOT POST QUESTIONS ABOUT THE ACTUAL EXAM QUESTIONS online in or outside of the course in Canvas. An easy way to think about it is this, if you are not being proctored by ProctorU, you are free to post your question in the discussion board at any time. If you are asking a question about material while you are being proctored, please email me privately through email when you have finished the exam.

Students who post Exam questions or answers online will be penalized. It will be considered an honor violation.

Please send an email to the instructor to discuss private matters such as grades, medical excuses and DRC letters.



The discussion board is a positive learning environment to ask questions. Please be respectful of other students at all times. Do not use profanity or use this as a place to complain. Please be positive so that we can create a positive environment for everyone to learn.

### Textbook Chapters Covered

<b>Chapter 1</b>	Statistics: The Art and Science of Learning From Data 1.1 Using Data to Answer Statistical Questions 1.2 Sample versus Population
<b>Chapter 2</b>	Exploring Data with Graphs and Numerical Summaries 2.1 Different Types of Data 2.2 Graphical Summaries of Data 2.3 Measuring Center of Quantitative Data 2.4 Measuring the Variability of Quantitative Data 2.5 Using Measures of Position to Describe Variability
<b>Chapter 3</b>	Association: Contingency, Correlation, and Regression 3.1 The Association Between Two Categorical Variables 3.2 The Association Between Two Quantitative Variables 3.3 Predicting the Outcome of a Variable 3.4 Cautions in Analyzing Associations
<b>Chapter 4</b>	Gathering Data 4.1 Experimental and Observational Studies 4.2 Good and Poor Ways to Sample 4.3 Good and Poor Ways to Experiment 4.4 Other Ways to Conduct Experimental and Nonexperimental Studies
<b>Chapter 5</b>	Probability in Our Daily Lives 5.1 How Probability Quantifies Randomness 5.2 Finding Probabilities 5.3 Conditional Probability: The Probability of A Given B 5.4 Applying the Probability Rules
<b>Chapter 6</b>	Probability Distributions 6.1 Summarizing Possible Outcomes and Their Probabilities 6.2 Probabilities for Bell-Shaped Distributions 6.3 Probabilities When Each Observation has Two Possible Outcomes
<b>Chapter 7</b>	Sampling Distributions 7.1 How Sample Proportions Vary Around the Population Proportion 7.2 How Sample Means Vary Around the Population Mean
<b>Chapter 8</b>	Statistical Inference: Confidence Intervals

	8.1 Point Estimates of Population Parameters 8.2 Constructing a Confidence Interval to Estimate a Population Proportion 8.3 Constructing a Confidence Interval to Estimate a Population Mean 8.3 Choosing the Sample Size for a Study 8.5 How Do Computers Make New Estimation Methods Possible?
<b>Chapter 9</b>	Statistical Inference: Significance Tests about Hypotheses 9.1 Steps for Performing a Significance Test 9.2 Significance Tests about Proportions 9.3 Significance Tests about Means 9.4 Decisions and Types of Errors in Significance Tests 9.5 Limitations of Significance Tests
<b>Chapter 10</b>	Comparing Two Groups 10.1 Categorical Response: Comparing Two Proportions 10.2 Quantitative Response: Comparing Two Means 10.3 Other Ways of Comparing Means and Comparing Proportions 10.4 Analyzing Dependent Samples

## School Closures

**If classes at the University of Florida are canceled**, the course will be suspended until the University reopens. The University will announce this closure on the University of Florida homepage. Any announcements about the course will be posted at the course website.

## Course Policies

**Extensions:** Because it is possible to complete the lessons and quizzes early and that there are three drops, no extensions will be given on assignments unless there is prolonged hospitalization. All quizzes are open from the beginning of the semester so students can work ahead if they need to, since all the material is also available as online interactive lessons posted from the start. Please complete the quizzes early if you have travel plans, religious observances, sports or club events, or any other conflict whether approved by the university or not.

**Extenuating Circumstances:** Sometimes students may be unable to complete their labs and quizzes due to extended hospitalization or illness, or some catastrophic event. They should avail themselves of the three makeup opportunities for quizzes and labs. In very rare instances these makeup opportunities are not enough. In these cases the student must meet with the Course Coordinator in person, during office hours, with all the appropriate documentation to discuss the situation. Each case will be reviewed individually.

**Privacy Policies:** Student records are confidential. Only information designated “UF directory information” may be released without your written consent. UF views each student as the primary

contact for all communication. If your parents contact me about your grade, attendance or other information that is not “UF directory information”, I will ask them to contact you.

**email:** email relating to information about the class should be sent to the instructor at [tamalg@ufl.edu](mailto:tamalg@ufl.edu) or through the course management system. If your questions are about your grade or of a personnel nature, please email Tamal Ghosh directly. Your message will be answered within one working day, in most cases. Two working days at the extreme. However, we ask you to please refer to this Syllabus and the course website to try to find the answers for yourself. Questions regarding the material covered should be asked on the Canvas discussion board. This way everyone can benefit from your questions.

**Instructor's Honor Code:** We the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

**Academic Dishonesty:** We adhere to the University of Florida rules and guidelines for handling instances of academic dishonesty. Please refer to the Office for Student Services for detailed information about the current policies.

**Students with Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resources Center (<http://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

**Grading:** Grades will be changed only when an error has been made; negotiation is not appropriate.

**Incomplete:** Incomplete grades are only assigned when extraordinary circumstances (such as an accident, or extended hospitalization), after more than 2/3rds of the course has been completed and prevent the student from completing the course requirements. Having a failing grade in the course is not a valid reason for requesting an Incomplete.

**Instructor Course/Evaluations:** Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu/>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

### Where to Get Help for this Course

- During Online Office Hours (free tutoring)
- Discussion board in Canvas
- Via emails to the instructor at [tamalg@ufl.edu](mailto:tamalg@ufl.edu)

### How to Do Well in the Course

- Keep up with the lessons. Set a schedule for yourself and stick with it.
- Visit the course website regularly to read announcements on the course homepage.
- Do well on the lessons and quizzes.

- Visit the free tutoring sessions to get help from the TA and your instructor. Our job is to answer any questions that you may have, and to help you understand the material and learn to do the problems.
- Get to know other students in the class and get together regularly to work on homework problems, and to study for quizzes and exams. Please remember to be professional in your conversations. Please respect each other and refrain from profanity.
- Prepare carefully for exams by going over the lessons, doing your suggested homework problems, studying your quizzes and reading the book. Pay special attention to the understanding of concepts and ideas behind the formulas.

### How to Get the Most Out of the Online Course

- Set aside time each day to complete the lessons.
- You should watch and read the lessons on a regular schedule.
- Complete the lessons and then do the quiz.
- Actively involve yourself in the lesson. Be inquisitive. Work out the problems presented in the videos. Learning is not a spectator sport. Jump in and work on the problems.
- Watch the lecture videos and complete the lessons in a low disruption environment. In addition, to watching the lecture, you should not be also texting, instant messaging, emailing, reading a website, watching TV, etc. Your attention should be focused on the lesson.
- I have carefully considered what needs to be discussed in the lessons. Make sure that you are paying attention to all of it.

### Problems

Each online distance learning program has a process for, and will make every attempt to resolve, student complaints within its academic and administrative departments at the program level. See <http://distance.ufl.edu/student-complaints> for more details.

- First, please contact the instructor first via email at [tamalg@ufl.edu](mailto:tamalg@ufl.edu)
- If necessary after that, please contact the chair of the Statistics department at 392-1941.
- If necessary after that, should you have any complaints with your experience in this course please visit <http://www.distance.ufl.edu/student-complaints> to submit a complaint.

### General Course Information

This course satisfies general education credits in the mathematical sciences. Students learn how to summarize data and how to make appropriate decisions based on data. (This course is the general education category of M.)

#### Course Description

STA2023 is an introductory course that assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. Basic statistical concepts and methods are presented in a manner that emphasizes understanding the principles of data collection and analysis rather than theory. Much

of the course will be devoted to discussions of how statistics is commonly used in the real world. There are two major parts to this course:

**I Data** – which includes graphical and numerical summaries to describe the distribution of a variable, or the relationship between two variables (chapters 1, 2 and 3, approximately **3 weeks**), and data production to learn how to design good surveys and experiments, collect data from samples that are representative of the whole population, and avoid common sources of biases (chapter 4, **1 day**.)

**II Probability and Inference** – using the language of probability and the properties of numerical summaries computed from a random samples (chapters 5, 6 and 7, approximately **4 weeks**), we learn to draw conclusions about the population of interest, based on our random sample, and attach a measure of reliability to them (chapters 8, 9, 10 approximately **8 weeks**).

### **Course Objective**

The primary goal of the course is to help students understand how the process of posing a question, collecting data relevant to that question, analyzing data, and interpreting data can help them find answers to real problems from their world.

### **General Education Objective (Mathematics)**

Courses in mathematics provide instruction in computational strategies in fundamental mathematics including at least one of the following: solving equations and inequalities, logic, statistics, algebra, trigonometry, inductive and deductive reasoning. These courses include reasoning in abstract mathematical systems, formulating mathematical models and arguments, using mathematical models to solve problems and applying mathematical concepts effectively to real-world situations.

### **In this course, this objective will be met by . . .**

During the semester the students will be given an introduction to the three main aspects of statistics: design (of experiments/surveys), description (of data collected) and inference (the extension of conclusions from the data gathered in the sample to the larger population). These concepts will be presented through lectures two times a week and three mini projects. They will also learn about the normal and binomial distributions as well as the methodology of confidence intervals and significance tests. From the methods that they learn in class they will be able to critique real world surveys and experiments, interpret graphs in newspapers and magazines as well as conduct basic statistical inference for one or two groups.

### **General Education Student Learning Outcomes (SLOs)**

**Content:** Students demonstrate competence in the terminology, concepts, methodologies and theories used within the discipline.

**Communication:** Students communicate knowledge, ideas, and reasoning clearly and effectively in written or oral forms appropriate to the discipline.

**Critical Thinking:** Students analyze information carefully and logically from multiple perspectives, using discipline specific methods and develop reasoned solutions to the problems.

### **In this course, these SLOs will be met by . . .**

**Content:** Students will learn critical terminology, concepts, methods, and theories during lecture. These concepts will include terminology to describe one and two samples, discuss surveys/experiments, basic probability theory, sampling distributions, and one and two group inference. The students will be assessed on these terms and concepts during the **lessons, quizzes and the three exams**. Students will also demonstrate their competence in identifying the appropriate formulas to use for each situation and using those formulas correctly.

**Communication:** The students will use verbal and written communication to discuss central statistical concepts in the **mini projects**. These concepts include description of data sets, sampling methods and interpretations of inference methodology.

**Critical Thinking:** The students will be asked to critically think about trustworthiness of surveys and experiments presented in the media. Additionally, students will learn how to conduct significance tests, a statistical method to logically determine if there is enough evidence for a hypothesis. Students will learn how to state the null and alternative hypotheses (different perspectives) and then to use the data collected to determine if there is enough evidence to support the alternative hypothesis using methods central to the field of statistics. **The students will be tested on these concepts in their lessons, quizzes and on the exams.**

### **Course Objective**

The primary goal of the course is to help students understand how the process of posing a question, collecting data relevant to that question, analyzing data, and interpreting data can help them find answers to real problems from their world.

### **University Services**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392- 1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

### **Counseling Services and Mental Health Services**

- <http://www.counseling.ufl.edu/cwc/Default.aspx>
- 392-1575

### **University Police Department**

- 392-1111 or 9-1-1 for emergencies