STA 2023 Statistical Methods I (GE Core)

Spring 2026

Credits: 3

Class numbers: 14436, 14463, 19559

Instructor Information

Instructor

Karina Gelis-Cadena

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Office: Griffin Floyd Hall, room 103A

Phone: 352 294 3913

Online Office Hours: TBA. Zoom link is on Canvas.

Please use either my UF email or Canvas email as the preferred method of communication.

Teaching Assistants and Online Office Hours EST

TBA

Zoom link is on Canvas.

Please contact TAs through their Canvas email.

Who to Contact for Help

Problem	Contact
Questions about grades or questions about actual exam questions.	Course Instructor
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).	TA or Instructor online office hours, or the Canvas discussion board. Your Discussion Board question can be answered by other students, teaching assistants or the Instructor.
Technical problem with videos or with quiz functions or other Canvas functionality.	UFIT Help Desk at http://helpdesk.ufl.edu/ or 352 392 4357

Course Description

In this course, students will utilize descriptive and inferential statistical methods in contextual situations, using technology as appropriate. The course is designed to increase problem-solving abilities and data interpretation through practical applications of statistical concepts. This course is appropriate for students in a wide range of disciplines and programs.

There are two major parts to this course:

I Data: Includes graphical and numerical summaries to describe the distribution of a variable, or the relationship between two variables (Modules 2 through 6, 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 (Module 7, 1 day.)

II Probability and Inference: Using the language of probability and the properties of numerical summaries computed from a random sample (Modules 8 through 13, 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 (Modules 14 through 24, approximately 8 weeks).

Course Objectives

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

General Education Objective (Mathematics)

Please read the General Education Subject Area Objectives to view the General Education Objectives (Mathematics).

General Education Student Learning Outcomes (SLOs)

- Students will visualize and summarize data using descriptive statistics.
- Students will apply basic probability concepts to draw reasonable conclusions.
- Students will employ concepts of random variables, sampling distributions, and central limit theorem to analyze and interpret representations of data.
- Students will choose an appropriate method of inferential statistics, including confidence intervals and hypothesis testing, to make broader decisions based on sample data.
- Students will model linear relationships between quantitative variables using correlation and linear regression.

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.

Student Learning Objectives

There are three categories to Student Learning Objectives: Content, Critical Thinking and Communication. The definition of these categories for General Education courses are found here General Education Student Learning Outcomes.

Content

Subject Area: In this course, students will learn critical terminology, concepts, methods, and theories during the lectures. 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. Students will also demonstrate their competence in identifying the appropriate formulas to use for each situation and using those formulas correctly.
Assessments: Students will be assessed on these concepts during lessons, on course assignments, and exams.

Critical Thinking

Subject Area: In this course, students will be asked to critically think about the trustworthiness of surveys and experiments presented in the media. 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.
Assessments: Students will be assessed on these concepts during lessons, on course assignments, and exams.

Communication:

Subject Area: In this course, 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.
Assessments: Students will be assessed on these concepts during lessons, on course assignments, and exams.

Course Requirements

Required Materials

- **Lecture Notes**: These are needed to follow along with the lectures. You will be able to print or download the lecture notes from the course home page in Canvas using the "Lecture Notes" link under the course banner.
- **Scientific Calculator**: You will need a calculator with some basic statistical functions including mean and standard deviation. Many inexpensive calculators (around $16) have these functions; check the manual or look for the following symbols: x-bar and either s or σn-1. Graphing calculators, TI-nspires, virtual calculators, and other smart devices are **not allowed** on exams.
- **Reliable Computer**: One that meets the requirements for online exams by Honorlock. This includes having access to a high-speed stable Internet connection and webcam.
- **Statistical Software Package**: The Mini Projects will require the use of a statistical software package. You can choose between three packages: artofstat.com (free online), Minitab (free in UF Apps, see https://info.apps.ufl.edu/) or StatCrunch.com ($13.00 for 6 months). Some of the quizzes will also ask you to access artofstat.com.

Optional Materials

- **Textbook** – Statistics: The Art and Science of Learning from Data by Agresti, Franklin, Klingenberg, 5th Edition, Pearson. To access the textbook you can:
  - Purchase as an etext ($76) from UF All Access. If you opt in you will also have access to StatCrunch (statistical software package).
  - Rent from Pearson.

Prerequisites

STA2023 is an introductory course that assumes no prior knowledge of statistics but does assume some knowledge of high school algebra. There are no required prerequisites for this course.

Minimum Technology Requirements

The University of Florida expects students entering an online program to acquire computer hardware and software appropriate to their degree program. Most computers are capable of meeting the following general requirements. A student's computer configuration should include:

- Webcam
- Microphone
- Broadband connection to the Internet and related equipment (Cable/DSL modem)
- Microsoft Office Suite installed (provided by the university)

Individual colleges may have additional requirements or recommendations, which students should review prior to the start of their program.

Minimum Technical Skills

To complete your tasks in this course, you will need a basic understanding of how to operate a computer, and how to use word processing software.

Materials/Supplies Fees

Additional Course Fees: $1.25.

Course Website

Canvas

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 on the discussion board and check your grade. For any technical problems with Canvas, please contact the UFIT Help Desk on 352 392 4357 or http://helpdesk.ufl.edu.

Zoom

Zoom is an easy to use video conferencing service available to all UF students, faculty, and staff that allows for meetings of up to 100 participants.

You can find resources and help using Zoom at https://ufl.zoom.us.

Course Policies

This course complies with all UF academic policies. For information on those policies and for resources for students, please see Academic Policies & Resources.

Extensions

All of the online interactive lecture videos, and the Module quizzes are open from the beginning of the semester so students can work ahead if they need to. Please complete the quizzes early if you have travel plans, religious observances, sports or club events, or any other conflict. Appropriate written documentation will be required for deadline extensions to be considered.

Extenuating Circumstances

Sometimes students may be unable to complete their quizzes due to extended hospitalization or illness, or catastrophic event. In these cases, the student must meet with the course instructor during online office hours with their camera on together 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 or through the course management system. If your questions are about your grade or of a personal nature, please email the course instructor directly. Your message will be answered within two working days, in most cases. However, 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.

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.

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 as soon as you realize you will be unable to take the test at the scheduled time and prior to the end of the day after the exam at the latest. Each case will be reviewed individually. Valid and detailed documentation is a prerequisite for scheduling a makeup exam under such extenuating circumstances. There are no retakes on the exam, even if you were feeling sick during the exam. If you are feeling sick, 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 via email prior to the end of the day after the exam at the latest.

To make arrangements for a makeup exam, contact the course instructor. Makeup exams will cover the same material as the regularly scheduled exam.

Important: Being on vacation or traveling on the day of the exam are not valid reasons to request a make-up exam. Not taking your exam on the actual day for these reasons, could result in a 0 on that exam.

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 course instructor via email.
- If necessary after that, please contact the chair of the Statistics department at 352 392 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.

Grading Policy

For this course the methods by which you will be evaluated and your grade determined are given below.

Course Assessment

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

Grading Scale

Letter Grade	Grade Points	Percentage of Points Needed
A	4.00	92 to 100%
A-	3.67	88.5 to 91.99%
B+	3.33	84.5 to 88.49%
B	3.00	80 to 84.49%
B-	2.67	78.5 to 79.99%
C+	2.33	74.5 to 78.49%
C	2.00	67.5 to 74.49%
D	1.00	60 to 67.49%
E	0.00	Below 60%

A minimum grade of C is required for general education credit.

Layout of the Course

The course is set up on a modular system.

- A module will be due twice a week, for a total of 24 modules in the course.
- Each module will have the following components.
  - **Overview**: This page gives the module objectives, a link to the interactive lecture video(s), a list of assignments to complete, optional textbook problems (not for a grade) and extra help information.
  - **Summary**: This page gives a summary of the material learned in the module.
  - **Quiz**: For each quiz, you will have three attempts, the highest attempt counts. This is worth 10 points.

Course Content

Lessons

You will be completing about two Modules each week. The Module will include text and video(s) about the day's assigned material. As you work through the material, you will be filling in the lecture notes. You should expect the interactive lecture video and related quiz assignment to take you approximately 2-3 hours per Module; however, this time may vary from student to student.

Quizzes

It is important to practice statistics in order to learn it. Each module has an online quiz that should be completed. The quizzes are worth 10 points each and are due by 11:59pm EST. Some of these quizzes will have questions around a theme whereas others will have more independent questions. There are 24 quizzes available. At the end of the semester, the lowest three Module quiz scores will be dropped.

Suggested Homework

Optional homework problems (not for a grade) from the textbook can be found listed under each module page.

Mini Projects

In this course, there will be three individual Mini Projects. The Mini Project brings together all aspects of the course: data collection, experimental design and data analysis. More information is provided on Canvas. Rubrics can be viewed here, however they can be updated. For the most up-to-date rubric please see the Mini Project directions on Canvas. The Mini Project is worth 17% of your grade. There will be a 4 point late penalty per day and not accepted after the 2nd

day. It is your responsibility to make sure that the Mini Project is uploaded correctly to Canvas. The Mini Project is due at 11:59pm EST. The Mini Project will be graded approximately five working days after the assignment deadline. Academic dishonesty on any Mini Project will be considered as violating the honor code. It will be reported via the SCCR process.

Exams

There will be **three** online proctored exams (see Proctoring section below and on Canvas for details on Honorlock). 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 on the understanding of concepts and ideas behind the formulas. For the exam, you will be allowed to have **one** blank sheet of scratch paper and a **scientific calculator**. Graphing calculators, TI-nspires, virtual calculators, and other smart devices are **not** allowed. Formula Sheets, and appropriate tables (z and t tables) will be provided within the exam. You are not allowed to print your own formula sheet or tables. You can find a link to the formula sheet in the Exam Overview for the exam, under Resources and Information.

Exams are not dropped. There are no retakes on exams.

Accessing a cell phone, smart device or communicating with another individual during the exam is considered an honor code violation and will be reported via the SCCR process. There are no breaks during the exam unless you have provided the instructor (before the exam) a DRC accommodation letter that has breaks as an accommodation. Leaving the proctored area during an exam is also considered an honor code violation.

Academic dishonesty on any exam will be considered as violating the honor code. It will be reported via the SCCR process.

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 “lecture notes page 9 question 1” or “Mini Project Question 2” or “Interpreting R-squared”. You can ask questions about the lecture notes, interactive lecture videos, mini projects, and the suggested 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 Canvas or outside of the course. If you have a question about the material on the exam, please email me privately when you have finished the exam.

Students who post exam questions or answers online will be considered as violating the honor code. It will be reported via the SCCR process.

Please send an email to the course 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.

Online Exam Dates

Exam	Date	Time	Modules	Lecture Notes
Exam 1	**Monday February 16th** (Opens 7am EST and closes 11:59pm EST)	Exam Length: 2 hours	1 through 10	p1-53
Exam 2	**Monday March 23rd** (Opens 7am EST and closes 11:59pm EST)	Exam Length: 2 hours	11 through 17	p54-89
Exam 3	**Wednesday April 22nd** (Opens 7am EST and closes 11:59pm EST)	Exam Length: 2 hours	18 through 24	p90-127

Online Proctoring with Honorlock

You will be taking your exam through an online proctoring company. Honorlock is a service that allows you to complete quizzes and exams while recording the session. The service utilizes a Google Chrome extension, meaning that the proctoring service is only compatible with a Google Chrome browser.

Please refer to this Honorlock Student Guide for more information about being prepared to take your exam with Honorlock. There will also be information given on the course website.

UF Policies

This course complies with all UF academic policies. For information on those policies and for resources for students, please see Academic Policies & Resources.

Class Demeanor or Netiquette

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions, and chats. Review the Netiquette Guide for Online Courses for expected student behavior.

Software Use

All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Virtual Class Sessions

Our virtual class sessions, if any, may be audio-visually recorded for students in the class to refer back. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and

comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials are prohibited.

Getting Help

Where to Get Help for this Course

- During online Office Hours
- Discussion board in Canvas
- Via emails to the course instructor

Resources are available at Distance Learning's Getting Help for:

- Counseling and Wellness resources
- Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints about your experience in this course, please visit Distance Learning's Student Complaint Process to submit a complaint.

Technical Difficulties

For issues with technical difficulties for Canvas, please contact the UFIT Help Desk at http://helpdesk.ufl.edu or 352 392 4357.

Any requests for make-ups due to technical issues **must** be accompanied by the ticket number received from the UFIT Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You **must** e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Health and Wellness

College can be a very stressful time in a person's life. Resources are available on campus to help students meet academic goals and solve personal problems, which may interfere with their academic performance. If you find that you are having difficulty emotionally or academically, there is substantial support available. See "A Self Help Guide for Students" or contact one of the following services:

- **U Matter, We Care:** If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit https://umatter.ufl.edu to refer or report a concern and a team member will reach out to the student in distress.
- **Counseling and Wellness Center:** Visit https://counseling.ufl.edu or call 352-392-1575 for information on crisis services as well as non-crisis services.
- **Student Health Care Center:** Call 352-392-1161 for 24/7 information to help you find the care you need, or visit https://shcc.ufl.edu.
- **University Police Department:** Visit https://police.ufl.edu or call 352-392-1111 (or 9-1-1 for emergencies).
- **UF Health Shands Emergency Room/Trauma Center:** For immediate medical care in Gainesville, call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608.
- **GatorWell Health Promotion Services:** For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit https://gatorwell.ufsa.ufl.edu or call 352-273-4450.

Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course, is urged to contact the Dean of

Students (202 Peabody Hall, 392-1261) for support. Furthermore, please notify your instructor(s) if you are comfortable in doing so. This will enable us to provide any resources that we may possess.

Tips for Success

How to Do Well in the Online Course

Taking a course online can be a lot of fun. Here are some tips that will help you get the most of this course while taking full advantage of the online format:

- Regularly visit the course website to read announcements and the course homepage.
- Keep up with the Modules. Schedule "class times" for yourself. Set aside time each day to complete the lesson and then do the module quiz
- Watch the interactive lecture videos in a low disruption environment. In addition to watching the lecture, you should not be texting, instant messaging, emailing, reading a website, watching TV, etc. Your attention should be focused on the lesson.
- Actively involve yourself in the lesson. Be inquisitive. Work out the problems presented in the lecture videos. Learning is not a spectator sport.
- Do well on the interactive lecture videos, Module quizzes and Mini Projects. It is important to do the Module quizzes and Mini Projects on time. You will receive a reduction in points for Mini Projects that are turned in late.
- Do your work well before the due dates. Sometimes things happen. If your computer goes down when you are trying to submit an assignment, you will need time to troubleshoot the problem.
- To be extra safe, back up your work to an external hard drive, thumb drive or through a cloud service.
- Prepare carefully for exams by going over the lessons including the interactive lecture video questions, studying the Module quizzes, doing the suggested homework problems (not graded). Pay special attention to the understanding of concepts and ideas behind the formulas.
- Attend the online office hours to get help from your instructor and the TA. Our job is to answer any questions that you may have, and to help you understand the material. Do not wait to ask questions. Waiting to ask a question might cause you to miss a due date.
- Get to know other students in the class and get together regularly to work on homework problems, and study for quizzes and exams. Please remember to be professional in your conversations. Please respect each other and refrain from profanity.
- Take full advantage of the online discussion boards. Ask for help or clarification of the material if you need it.

Privacy and Accessibility Policies

For information about the privacy policies of the tools used in this course, see the links below:

TECHNOLOGY	PRIVACY POLICY	ACCESSIBILITY POLICY/STATEMENT
Instructure (Canvas)	Privacy Policy	Accessibility
Sonic Foundry (Mediasite Streaming Video Player)	Privacy Policy	Accessibility
Zoom	Privacy Policy	Accessibility

Google	Privacy Policy	Accessibility
Microsoft	Privacy Policy	Accessibility
PlayPosit	Privacy Policy	Accessibility
Honorlock	Privacy Policy	Accessibility

Weekly Course Schedule (Tentative)

Module quiz and Mini Project deadlines are given below. They are due by 11:59pm EST on the given date, with the exception of the material covered before drop/add. The base length of each lecture video is also given. The lecture videos are interactive and will ask questions as you watch them. This means that each lecture video may take longer than stated depending on the length of time it takes you to answer the embedded questions.

	Monday		**Thursday**
Week 1	**1/12 Module 1:** Course Orientation and Syllabus Lecture video: 45 minutes *Quiz due 1/22*		**1/15 Module 2:** What is Statistics? Lecture video: 25 minutes *Quiz due 1/22*
Week 2	**1/19 Module 3:** Holiday	**Tuesday 1/20 Module 3:** Exploring Data with Graphs Lecture video: 66 minutes *Quiz due 1/22*	**1/22 Module 4:** Measures of Center, Spread and Position Lecture video 1: 54 minutes Lecture video 2: 51 minutes *Quiz due 1/22*
Week 3	**1/26 Module 5:** Introduction to Regression Lecture video 1: 48 minutes Lecture video 2: 39 minutes *Quiz due 1/26*		**1/29 Module 6:** Cautions in Regression and Categorical Data Lecture video 1: 34 minutes Lecture video 2: 30 minutes *Quiz due 1/29*
Week 4	**2/2 Module 7:** Gathering Data Lecture video 1: 30 minutes Lecture video 2: 27 minutes Lecture video 3: 28 minutes *Quiz due 2/2* ***Mini Project 1 due 2/2***		**2/5 Module 8:** Understanding Probability Lecture video 1: 50 minutes Lecture video 2: 33 minutes *Quiz due 2/5*

Week 5	**2/9 Module 9:** Continuous Probability Distributions Lecture video: 58 minutes *Quiz due 2/9*		**2/12 Module 10:** Discrete Probability Distributions and Review of Normal Lecture video 1: 53 minutes Lecture video 2: 64 minutes *Quiz due 2/12*
Week 6	**2/16** **Exam 1**		**2/19 Module 11:** Sampling Distribution of $\hat{p}$ Lecture video: 39 minutes *Quiz due 2/19*
Week 7	**2/23 Module 12:** Sampling Distribution of $\bar{x}$ Lecture video: 46 minutes *Quiz due 2/23*		**2/26 Module 13:** More Sampling Distribution Problems Lecture video: 51 minutes *Quiz due 2/23*
Week 8	**3/2 Module 14:** Confidence Intervals for p Lecture video: 51 minutes *Quiz due 3/2*		**3/5 Module 15:** Confidence Intervals for μ Lecture video: 46 minutes *Quiz due 3/5*
Week 9	**3/9 Module 16:** Sample Size Determination and More on Confidence Intervals Lecture video 1: 47 minutes Lecture video 2: 51 minutes *Quiz due 3/9* ***Mini Project 2 due 3/9***		**3/12 Module 17:** Significance Tests for Proportions Lecture video 1: 31 minutes Lecture video 2: 43 minutes Lecture video 3: 32 minutes *Quiz due 3/12*
Week 10	**Spring Break**		**Spring Break**
Week 11	**3/23** **Exam 2**		**3/26 Module 18:** Significance Tests for Means Lecture video: 41 minutes *Quiz due 3/26*
Week 12	**3/30 Module 19:** Additional Concepts about Significance Tests Lecture video 1: 50 minutes Lecture video 2: 33 minutes *Quiz due 3/30*		**4/2 Module 20:** Comparing Two Independent Proportions Lecture video: 67 minutes *Quiz due 4/2*

Week 13	**4/6 Module 21:** Comparing Two Independent Means Lecture video: 54 minutes *Quiz due 4/6*		**4/9 Module 22:** Comparing Two Dependent Means Lecture video: 49 minutes *Quiz due 4/9*
Week 14	**4/13 Module 23:** McNemar's Test and Permutation Tests Lecture video: 49 minutes Quiz due 4/13		**4/16 Module 24:** Review Mixed Examples Lecture video 1: 34 minutes Lecture video 2: 29 minutes Lecture video 3: 66 minutes *Quiz due 4/16* ***Mini Project 3 due 4/16***
Week 15		**Wednesday 4/22** **Exam 3**	