**Mathematics 4001 A**

Probability and Statistics

Fall Semester 2019

MWF 11:00–11:50

Instructional Complex 224

|  |  |
| --- | --- |
| Instructor: | Dr. Satyajit Karmakar |
|  |
| Office: | Instructional Complex 231 |
|  |
| Office Hours: | 10:00-11:00, 2:15-3:30 MW10:00-11:00, 2:15-4:45 FAnd by appointment |
|  |  |
| Office Phone: | 678-379-5833 |
|  |
| E-mail: | s\_karmakar@gordonstate.edu |
|  |
| Web Page: | [www.gordonstate.edu/faculty/s\_karmakar](http://www.gordonstate.edu/faculty/s_karmakar) |
|  |
| Prerequisite: | MATH 1502 |
|  |
| Credit: | 4 semester credit hours |
|  |
| Calculator / Math Software: | Graphing calculator required. TI-83 / MAPLE   |
|  |
| Text: | Robert V. Hogg, Elliot A. Tanis, and Dale L. Zimmerman 2015. Probability and Statistical Inference 9th Edition. Pearson.ISBN-10: 0-321-92327-8 |

**Course Description**

This course includes a variety of topics in probability and Statistics including, but not limited to collection, organization, and description of data, probability, random variables, probability distribution, Central Limit Theorem, sampling, estimation and testing of hypotheses.

This course will emphasize student preparation, critical thinking, and problem solving. To do well in the course, you must ***read the assignment ahead of time*** and prepare questions, do problems from the text, and prepare for test by reviewing those problems worked in class and at home. Over the course of the semester, you should devote about two hours of outside work for each hour in class. Calculus III demands your time and effort! **First, study the examples worked in class as well as those in the textbook, then practice, practice, practice problems.**

This course, as many other courses, will emphasize the written communication of ideas to others. In this course, you will be communicating probabilistic and statistical ideas. Just as it is important in an English course to use the proper format in your essays and term papers, it is important to use proper form when communicating probabilistic and statistical ideas. You will learn how to write mathematics and statistics so that it can be understood by others. You should carefully study how mathematics and statistics is written in class as well as how it is written in the textbook. You should pattern your writing after these sources.

**Course Objectives**

This objective is directed toward the following general education expected outcome of the college:

**Mathematical Skills:** Students will demonstrate a basic knowledge of the fundamentals of college-level mathematics.

Upon completion of Probability and Statistics,students should have an understanding of:

 1. Probability

 2. Discrete Distributions.

 3. Continuous Distributions.

 4. Bivariate Distributions.

 5. Distributions of Functions of random variable.

 6. Estimation.

 7. Tests of statistical hypothesis

**Method of Evaluation**

There will be four (4) take-home assignments given during the semester. Assignments are due at the ***beginning of class*** on the date due. For each day an assignment is late, ***five (5) points will be deducted*** from the assignment. Late assignments will only be accepted for ***three (3) class days*** following the due date. After this time, a zero (0) is recorded as the assignment grade. Just having the correct answer to a homework question will **NOT** earn you credit for the problem; you must use clear mathematical reasoning and clear mathematical writing to show me how you arrive at your solution.

There will be four (4) in-class tests given during the semester. **If a make-up test is required, there will be 20% penalty unless there is a documented medical excuse or documented death in the immediate family.** A make-up test **must** be taken within **48 hours** of your return to class or by the last day of class (whichever comes first), after which you receive a grade of zero. *All test will be taken without references of any description*. Just having the correct answer to a test question will **NOT** earn you credit for the problem; you must use clear mathematical reasoning and clear mathematical writing to show me how you arrive at your solution.

There will also be a comprehensive **Final Exam given on Thursday, Dec 12 at 10:15 am**. Gordon College policy states the Final Examinations must be taken at the scheduled time. Therefore, students are **not** permitted to take the Final Examination early. Please make your plans accordingly.

The student’s final grade will be computed as follows:

|  |  |
| --- | --- |
| Assignments | 15% |
| Tests | 60% |
| Final Exam |  25% |
| TOTAL | 100% |

The following grading scale will be used.

 89.5 or above A 59.5 to 69.49 D

 79.5 to 89.49 B Below 59.5 F

 69.5 to 79.49 C

**Class Procedures**

**Attendance:** Attendance at class is important. I will take attendance by passing an Attendance Sheet for you to sign. ***If your signature is not beside your name for a particular day, you are considered absent. It is your responsibility to make sure you sign the Attendance Sheet.*** Students absent two consecutive days without contacting me may be withdrawn from the course. Students are responsible for every instruction, every change in the syllabus, and all material covered in class whether or not they are present. ***Students who enroll in the course late are responsible for material covered before they enrolled.***

**Working Problems:** Most students will benefit by working *many, many* problems for practice. For each section in the text, I will provide a list of suggested homework problems. These are intended to give the student practice in specific concepts that are taught in class. The problems will not be graded. However, I strongly encourage you to work them to better prepare for the tests. I will use approximately the first ten minutes of class to answer any questions about the homework problems. Math is not a spectator sport!

**Group Work:** I encourage students to work together on homework.

**Academic Honesty:** Each student must do his or her own work on exams without any assistance from any outside source not specifically authorized by me. The student handbook details school policies on academic honesty.

**ADA and 504**: If you have a documented disability as described by the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, Section 504, you may be eligible to receive accommodations to assist in programmatic and/or physical accessibility.  The Counseling and Accessibility Services office located in the Student Center, Room 212 can assist you in formulating a reasonable accommodation plan and in providing support in developing appropriate accommodations to ensure equal access to all GSC programs and facilities.  Course requirements will not be waived, but accommodations may assist you in meeting the requirements.  For documentation requirements and for additional information, contact Counseling and Accessibility Services at 678-359-5585.

**Title IX**: Gordon State College is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. All faculty members at Gordon State College are mandated reporters. Any student reporting any type of sexual harassment, sexual assault, dating violence, domestic violence or stalking must be made aware that any report made to a faculty member under the provisions of Title IX will be reported to the Title IX Coordinator or a Title IX Deputy Coordinator. If you wish to speak with someone confidentially, you must contact the Counseling and Accessibility Services office, Room 212, Student Life Center. The licensed counselors in the Counseling Office are able to provide confidential support.

 Gordon State College does not discriminate against any student on the basis of pregnancy, parenting or related conditions. Students seeking accommodations on the basis of pregnancy, parenting or related conditions should contact Counseling and Accessibility Services regarding the process of documenting pregnancy related issues and being approved for accommodations, including pregnancy related absences as defined under Title IX.

**House Bill 280:** For information regarding House Bill 280, see the University System of Georgia at the following link: http://www.usg.edu/hb280

**Religious Holidays:** Gordon State College acknowledges that the academic calendar can sometimes conflict with major holidays from among our diverse religious traditions. If a student must miss class due to the observance of a religious holiday, that absence may be excused. To be excused, the student must inform his/her instructors before the absence and make alternate arrangements for any work due at the time of the absence. An excused absence for the observance of a religious holiday does not excuse student from responsibility for required course work.

**Gordon E-mail:** Your Gordon e-mail address is where ***all*** official communication from Gordon College is sent. This includes registration information, etc. Please check your Gordon e-mail account periodically for important information. You should also delete junk e-mail to keep your mailbox from getting full. If your mailbox is full, you may not receive important e-mail notifications. Also, if I need to communicate with you via e-mail, I will send the message to your Gordon e-mail account.

**Classroom Etiquette:** Students are expected to treat the instructor and other students with respect. Please refrain from the following during class time:

 1. Talking with other students (other than during classroom or group activities).

 2. Leaving class early (other than an emergency).

 3. Leaving the desk to sharpen a pencil in the middle of a lecture.

 4. Consistently late coming to class.

 5. Pagers beeping during class.

 6. Placing or receiving cellular phone calls during class.

**Office Procedures**

When you come to my office for help, please be prepared by doing the following.

 1. Bring your textbook, your calculator, and you class notes.

 2. Make sure you have read the section in the text, read the class notes, and studied the examples.

 3. Be prepared to show me at least two odd-numbered problems, from the section, that you have worked.

 4. Bring your incomplete or incorrect solution to each problem about which you have a question.

 5. Ask for help as early as possible. **Don’t wait until the day of a test!**

 **Tentative Course Outline**

MATH 4001

Fall Semester 2019

| **Date** | **Section** |
| --- | --- |
| Mon, Aug 19 | 1.1 |
| Wed, Aug 21 | 1.2 |
| Fri, Aug 23  | **1.3** |
| Mon, Aug 26 | 1.4 |
| Wed, Aug 28 | 1.5 |
| Fri, Aug 30 | 2.1 |
| **Mon, Sep 2** |  **Labor Day Holiday** |
| Wed, Sep 4 | 2.2 |
| Fri, Sep 6 | 2.3 |
| Mon, Sep 9 | review |
| **Wed, Sep 11** | **Test 1** |
| Fri, Sep 13 | 2.4 |
| Mon, Sep 16 | 2.5 |
| Wed, Sep 18 | 2.6 |
| Fri, Sep 20 | 3.1 |
| Mon, Sep 23 | 3.2 |
| Wed, Sep 25 | 3.3 |
| Fri, Sep 27 | 3.4 |
| Mon, Sep 30 | 3.5 |
| Wed, Oct 2 | 3.6 |
| Fri, Oct 4 | Review |
| **Mon, Oct 7** | **Test II** |
| Wed, Oct 9 | 4.1 |
| Fri, Oct 11  | 4.2 |
| Mon, Oct 14 | 4.3 |
| Wed, Oct 16 | 5.1 |
| Fri, Oct 18 | 5.2 |
| Mon, Oct 21  | 5.3 |
| Wed, Oct 23 | 5.4 |
| Fri, Oct 25 | 5.5 |
| Mon, Oct 28 | 5.6 |
| Wed, Oct 30 | Review |
| **Fri, Nov 1** | **Test III** |
| Mon, Nov 4 | 5.7 |
| Wed, Nov 6 | 5.8 |
| Fri, Nov 8 | 6.1 |
| Mon, Nov 11 | 6.2 |
| Wed, Nov 13 | 6.4 |
| Fri, Nov 15 | 7.1 |
| Mon, Nov 18 | 7.2 |
| Wed, Nov 20 | **7.3** |
| Fri, Nov 22 | 7.4 |
| **Mon, Nov 25 – Fri, Nov 29** | **Thanksgiving Holiday** |
| Mon, Dec 2 |  Review |
| **Wed, Dec 4** | **Test IV** |
| Fri, Dec 6 | **7.5** |
| Mon, Dec 9 | Review |
|  |  |
| **Thursday,** **Dec 12** **10:15–12:15** | **Final Exam** |