

**Course Syllabus**  
**STAT 416-70: Mathematical Statistics II**  
**Department of Mathematical Sciences**  
**Central Connecticut State University**  
**New Britain, CT 06050**  
**Fall 2010**

**Class Meeting Times:** Tuesday and Thursday: 5:15 – 6:30 PM; Maria Sanford 321

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**READ THIS SYLLABUS CAREFULLY. YOU ARE RESPONSIBLE FOR KNOWING THIS INFORMATION!**

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**Instructor:** Dr. K.K. Saha  
**Office:** Marcus White Hall 104  
**Phone:** (860) 832 2840  
**Email:** [sahakrk@ccsu.edu](mailto:sahakrk@ccsu.edu)

**Office Hours:** Tuesday: 6:30 – 7:15 PM, Wednesday: 11:00 – 2:30 PM, and Thursday: 12:15 – 1:00 PM.

**Textbook:** *Probability and Statistical Inference* (8th edition) by Hogg & Tanis  
ISBN: 978-0-3-2158475-5

**Topics Covered:** Chapters 4 through 8 of this textbook will be covered in this course. See details in the tentative course schedule section.

**Course Description:** Continuation of theory and applications of statistical inference. Elements of sampling, point and interval estimation of population parameters, tests of hypothesis, and the study of multivariate distributions. This material can be found in Sections 4.1-4.6, 5.1-5.7, 6.1-6.6, 7.1-7.4, 8.1-8.2 and 10.2 in the text.

**Prerequisite:** STAT 315, Mathematical Statistics I

**Course Requirements:** For this course, the expectation is at least 6 hours of work outside of class each week to complete the reading materials and problem sets. However, a general rule for any course is that you are expected to put in at least 2 hours of work outside of class for every “hour” (50 minutes) in class. You are expected to attend and participate in all of the class secessions. If you are going to miss a class for a legitimate reason, please call or e-mail me in advance. You are expected to understand and use the concepts in the first three chapters of the assigned text. You are responsible to complete satisfactorily all of the reading material, the content of the text and lectures and all assignments whether you are attendance or not. You must complete at least all the odd numbered problems in the sections covered each week. It is essential for understanding the methodology and passing the tests. Note that you are also responsible for completing all even numbered problems. You are encouraged to work with others on these problems, and to utilize any resources available. You are responsible to take all the quizzes and exams at their scheduled times.

**Important Dates:** See the academic calendar at <http://www.ccsu.edu/page.cfm?p=2273>

**Course Vista:** Vista will be used to supplement this course and weekly online quizzes. You will be able to access to WebCT through CCSU Central Pipeline. This will also be used to post course syllabus, your marks, solutions for assignments, quizzes, and exams; distribute documents and make other materials available to you. Make sure to activate your CCSU computer account. For help, call 832 1720.

**Tutoring:** Might be provided by the learning center located in Room 241, Copernicus. Free tutoring is available in Room 242, Copernicus.

**Students with Disability:** If you need any special accommodations, please contact immediately the Office of Student Disability Services NC 241, Ms. Natalie Stimpson Byers Coordinator for Student Disability Services, Phone: (860) 832-1957; Fax: (860) 832-1924; Email: Byers@ccsu.edu

**Course Contents:** The tentative outline of the course is given below.

<b>Week</b>	<b>Start Date</b>	<b>Topics</b>	<b>Readings</b>
1	Aug 30	Distributions of 2 RVs The Correlation Coefficient	Section 4.1 Section 4.2
2	Sept 6	Conditional Distributions Bivariate Normal Distribution	Section 4.3 Section 4.4
3	Sept 13	Functions of a RV	Section 5.1
4	Sept 20	Transformations of RVs	Section 5.2
5	Sept 27	Several Independent RVs MGF Technique	Section 5.3 Section 5.4
6	Oct 4	Functions of Normal RVs	Section 5.5
		<b>Exam-I (October 7th)</b>	<b>Sections 4.1-4.6, 5.1-5.5</b>
7	Oct 11	Central Limit Theorem Normal Approximation to Binomial and Poisson Distributions	Section 5.6 Section 5.7
8	Oct 18	Point Estimation	Section 6.1
9	Oct 25	Confidence Intervals for Means	Sections 6.2-6.3
10	Nov 1	Confidence Intervals for Variances/Proportions	Sections 6.4-6.5
11	Nov 8	Confidence Intervals and Sample Size	Section 6.6
12	Nov 15	Hypothesis Testing about Proportions/Mean	Sections 7.1-7.3
		<b>Exam-II (November 18th)</b>	<b>Sections 5.6-5.7, 6.1-6.6, 7.1-7.3</b>
13	Nov 22	Hypothesis Testing about Variances Power of a Statistical Test	Sections 7.4 Section 10.2
14	Nov 29	Chi-Square Goodness-of-Fit Test Contingency Tables	Section 8.1 Section 8.2
15	Dec 6	Review	Chapters 4-8
16		<b>Final Examination December 14th at 5:00 – 7:00 PM in class</b>	<b>Chapters 4-8</b>

**Evaluation:** Minimum averages have been established for each of these grades:

A 93% A- 90% B+ 87% B 83% B- 80% C+ 77% C 73% C- 70% D+ 67% D 63% D- 60%

**Grading Assessment:** The final grade for this course will be calculated based on the following weights.

Class Participation and Homework	5% & 10%
Exams I and II	25% and 25%
Final Exam (comprehensive)	<u>35%</u>
Total	100%

**Attendance and Class Participation:** Classroom attendance is viewed as a very important part of the learning process. Students are advised that excessive absenteeism may result in the student being disbarred from the exams. So, attendance will be taken during the class session and maybe few bonus points for final exam will be allocated for your attendance. Attendance sheet will be given beginning of each lecture and you will be responsible to sign this sheet. Note that this may also be used to adjudicate border line cases. In addition, you are encouraged to raise questions during class and try to answer questions that being asked during the class session.

**Homework:** Weekly home work assignments will be posted on the course WebCT. You must turn in the assignments on the day of the exams. In all assignments, you are to turn in neatly written answers to all questions. Photocopies or e-mail copies are not acceptable. Loose pages will not be accepted. You must use a Staple. Actively solving these assignments is strongly recommended and the best way to learn the course material. Also, they will help in answering the questions in exams, please keep in mind that your grade will be determined by your exam scores, which you must do by yourself.

**Exams:** The two one-period exams will be given based on the material covered in **Sections (3.5, 4.1-4.6, 5.3, 5.6) and (5.2-5.5, 6.2-6.8)** in the text. I will announce in advance for any changes in the exam material and exam date. All these exams will be closed book, but you will be permitted to bring one sheet of formulas. The schedules for the exams are as follows:

**EXAM-I: October 7th; EXAM-II: November 18th.**

**Final Exam:** The 2 one-hour comprehensive final exams will be given in December as scheduled by the Register as follows: **December 14th at 5:00 – 7:00 PM in class**

**NO MAKE UPS WILL BE GIVEN:** If you miss one of the *hour exams*, contact me immediately (preferably in advance). If you have a good reason for not being able to take the test as scheduled, I will substitute your final exam score for that test when computing your final grade. Otherwise a grade of zero will be recorded for the missed exam. I will do this only for the first missed test. Subsequent missed tests will be recorded with a grade of zero.

**Incomplete Grade:** An “I” will be assigned if and only if (all must apply) (i) the student is not currently failing the class; (ii) there is no substantial quantity of work yet to be completed; (ii) there is no extra work required of the instructor beyond the normal duties of grading the paper/exam; and (iv) there is no need for the student to attend the class in subsequent terms. An “I” grade must be made up according to the university guidelines.

**Cell Phones Prohibited:** The use of cell phones during class time or exam for any purpose is prohibited. Make sure to turn off your phone before entering the classroom.

**E-mail Policy:** E-mail should be used only to provide me with information or to ask a question that requires a brief response – “What did I miss in class today?” does NOT account. For more lengthy discussions, you will be encouraged to raise questions during class or during office hours, or make a separate appointment if necessary. Please note that when you send an e-mail, make sure you put the course number with section or class meeting times in the subject.

**Disclaimer:** The instructor reserves the right to adjust the scope of the course, including number and timing of exams, as necessary.

**Disability Statement:** Please contact me privately to discuss your specific needs if you believe you need course accommodations based on the impact of a disability, medical condition, or if you have emergency medical information to share. I will need a copy of the accommodation letter from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, room 241, Copernicus Hall if you are not already registered with them. Student Disability Services maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

**University Policies:**

1. You must take the final examination at the time specified in the course selection book. **The final examination for this class will be held on December 14th at 5:00 – 7:00 PM in class.**
2. If you need course adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, *please make an appointment with me as soon as possible.* My telephone numbers and office hours are given above.

I will need a copy of the accommodation letter from Student Disability Services in order to arrange your class accommodations. Contact Student Disability Services, room 241, Copernicus Hall, if you are not already registered with them. Student Disability Services maintains the confidential documentation of your disability and assists you in coordinating reasonable accommodations with your faculty.

3. In the event of a weather emergency which requires curtailment or cancellation of classes, listen to WTIC (1080 AM) or call (860) 832-3333 for the “general snow message.”
4. **The last day to withdraw from a course is Monday, October 25.** Approvals for withdrawal are not required; however, it is strongly recommended that students consult with their academic advisors prior to deciding to withdraw. Cessation of attendance, notice to the instructor, or telephone calls to the Enrollment Center are not considered official notice of a student’s intention to drop the course.

After **October 25** withdrawals are allowed only under extenuating circumstances and require approval of the course instructor, department chair and dean of the School of Arts and Sciences. **Poor academic performance is not considered an extenuating circumstance.**

5. You are responsible for understanding and abiding by the University’s policy on academic integrity. Information on the policy may be found at <http://www.ccsu.edu/AcademicIntegrity/>. This policy is rigorously enforced by the Department of Mathematical Sciences.

**Resources Available:**

1. If you need help, take advantage of your instructor's office hours. Do not wait until just before the first test to do so.
2. The Learning Center is located in Room 241, Copernicus. Free tutoring is available in Room 242, Copernicus, and at other locations on campus. A schedule for hours the Center is open will be posted soon after the beginning of the semester.
3. Form a study group with other students in your section. Explaining solutions to homework problems to each other is a good way to learn.
4. A list of private tutors for hire is available in the math department office, Room 107 Marcus White, 832-2835.