

Textile Testing

TXMI 3520

3 credit hours

Fall 2009

Class Meetings: Lecture: Mondays 8:00-9:55; Lab Section 1: Wednesdays 8:00-9:55; Lab Section 2: Fridays, 8:00-9:55; **Open Lab- TBA**; Dawson 308

University Honor Code And Academic Honest Policy: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of other." All academic work must meet the standards contained in *A Culture of Honesty* found at <http://www.uga.edu/ovpi>. All students are responsible to inform themselves about those standards before performing any academic work.

Professor: Suraj Sharma, PhD

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Office Hours: Mondays, 1:30-3:30; Wednesdays, 1:30-3:30; and by appointment.

Graduate Assistant: Tiarra Wade

Course Prerequisites: TXMI 3500 or equivalent
Statistics course

Required Text/Materials:

Following are required and are available at the UGA bookstore and Bel-jean

1. Collier, B. J. and Epps, H. H., *Textile Testing and Analysis* (1999); available at UGA book store.
2. Lab Notebook; available at Bel-jean.

**Additional Readings will be required and will be made available by the professor.

Technology Required: Students must be able to access e-mail and WebCT, and access internet web sites.

Attendance Policy:

1. Attendance and participation are expected at all class and lab sessions. Attendance will be taken through a sign in sheet. It is the student's responsibility to sign in each class.
2. Absent students are responsible for any work announced in class.
3. Three missed class sessions will result in a drop by a letter grade. Extenuating circumstances will be handled individually and are at the discretion of the professor.

Materials Required for Laboratory: You will be required to purchase about 4.0 yards of a woven fabric suitable for a specific end use. This will be explained in the class. You also must have your own graph paper, ruler, calculator and scissors suitable for cutting fabric.

Course Description: Standard testing procedures and equipment used in determining the end-use performance of textiles. Analysis of fibers, yarns and fabrics.

Course Objectives:

- Understand principles of textile testing
- Understand sampling, statistical analysis, and validity in interpretation of results
- Be able to accurately follow standard test methods
- Perform standard tests on fibers, yarns and fabrics
- Familiarize the student with textile testing equipment and the various facets of testing
- Derive valid conclusions on end-use performance of fabrics based on testing data

Evaluation/Course Requirements: Class attendance is mandatory in order to earn all points.

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|---|---------------------------------|
| 1. Complete successfully mid-term exam | 125 points |
| 2. Complete successfully final-term exam | 150 points |
| 3. Lab reports | 160 points |
| 4. Final oral and written report | 65 points |
| 5. Attendance and class participation
(problem set from textbook,
quizzes from reading material,
current articles' discussion) | 150 points (see scoring rubric) |

Total 650 points

Grading Policy: There are 650 possible points in this course. Final grade assignments will be consistent with the official grading system approved by the Board of Regents.

93-100 (A)	90-92.9 (A-)	88-89.9 (B+)
83-87.9 (B)	80-82.9 (B-)	78-79.9 (C+)
73-77.9 (C)	70-72.9 (C-)	60-69.9 (D)
<60 (F)		

Class Expectations and Reminders:

1. Please be present and punctual. Turn off cell phones and beepers.
2. You must read the assigned chapters and materials before the class lecture. You should derive a study/preparation strategy that gives you adequate time to read the material. Think about the concepts, and develop questions. You are responsible for all text and supplemental lecture material unless directed otherwise.

3. Make-up exams are given only under extraordinary circumstances and students must inform the instructor prior to the administration of the exam. Please note that make-up exams may receive a reduced grade.
4. Students with learning disabilities must notify me at the beginning of the semester. It is the student's responsibility for making arrangements and completing all paperwork for each exam.
5. Assignments, whether homework or lab reports, will be due at the beginning of class on the due date.

The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Course Calendar

Note: Students should read text chapters and assigned readings prior to class meetings

Date	Topic	Text Assignment Chapter	Lab
Aug. 17	Introduction	1	
19/21		-	-
24	Test Development	2	
26/28			1
31	Sampling; Handling data; Conditions for testing	3,4	
Sept. 2/4			2
7	Labor Day		
9/11			3,4
14	Textile properties and performance	5	
16/18			5,6,7,8
21	Tensile properties	6	
23/25			9,10,11
28	Abrasion and wear	7	
Oct. 30/2			12,13,14
5	Dimensional stability; Appearance retention	8	
7/9			15,16,17,18
12	Mid-term Exam		
14/16			19,20,23

	19	Color and colorfastness	10	
	21/23			21,22,24,25
	26	Organisms and weather	11	
	28/30	Fall break		
Nov.	2	Hand and drape	12	
	4/6			26,27,28,29
	9	Comfort and related properties	13	
	11/13			30,31,32
	16	Safety aspects	14	
	18/20			-
	23-27	Thanksgiving break		
	30	Review		
Dec.	2/4			-
	7/8	Oral reports		
	9	Reading day		
	10	Final-term Exam: 8:00-11:00		

Oral Report

10 Minutes- Maximum

At the beginning of the semester, you will be paired with another class member regarding the type of fabric (its end-use) you would acquire.

Your goal report will be the two-person team.

Tell what intended fabric end-use is

Show samples, and explain primary differences

What characteristics that you tested for (or perhaps did not test) are important for the end-use?

What conclusions can you draw?

What big difference between the two fabrics? Any reason(s) why one of the fabrics is obviously superior for the intended end-use?

What conclusions can be drawn based on the results?

Would each fabric be acceptable for intended end-use? Why?

You can present results orally with the use of PowerPoint.

Make comparison when appropriate. For example, test that may have some relationship to one another

How does fabric perform in:

grab strength

Raveled strip

Absorbency, water repellence

Wrinkle recovery, appearance after laundering

Colorfastness to: crocking

Written Report: Typed 3-4 pages. This is due to me by December 7/8

1. Include important information about your fabric. Where bought, what information was given, price per yard, description of fabric. What name would be given to the fabric, and which weave pattern is used in it. Be sure to attach a small (3" × 3") specimen of your fabric to report
2. Did you find any discrepancies between information furnished at the store and your test and analyses?
3. Organized reporting of the test you ran on the fabric. Give your mean on the tests, but not the S.D. or C.V. You may cut and paste the section below and put in your report filled out.

Overall fabric properties:

- A) Bow_____ and skew_____
 - B) Thickness_____
 - C) Fabric count_____
 - D) Fabric density_____
 - E) Grab strength_____ Elongation_____
 - F) Raveled strip strength_____ Elongation_____
 - G) Flat abrasion- Stoll_____
 - H) Random tumble pilling_____
 - I) Brush-sponge pilling_____
 - J) Dim. Stab. After Laundering_____
 - K) Appearance after laundering_____
 - L) Dim. Stab. After dry clean_____
 - M) Appearance after dry clean_____
 - N) Dim. Stab. After hand wash_____
 - O) Care label instructions
 - P) Wrinkle recovery angle_____
 - Q) Water repellency_____ and absorption_____
 - R) Wicking_____
 - S) Colorfastness to laundering_____
 - T) Colorfastness to dry cleaning_____
 - U) Colorfastness to UV and Vis light (for this put down hours where first clearly discernible fading)_____
 - V) Colorfastness to weathering_____
 - W) Colorfastness to crocking, dry_____ and wet_____
4. Your discussion should address how your fabric's performance met, or did not meet, the performance specification (from ASTM). You can use tables, figures, illustrations to make your point clear.
 5. This report should be well written in full sentences and paragraphs. This does matter. Discuss results from above tests that you think are noteworthy for your intended end-use, and why?

Tell what intended fabric end-use is. What characteristics that you tested for (or perhaps did not test) are important for the end-use? What conclusions can you draw?

6. Get together with your partner and compares results. What big difference between the two fabrics? Any reason(s) why one of the fabrics is obviously superior for the intended end-use? What conclusions can be drawn based on these results? Would each fabric be acceptable for intended end-use? Why?

Scoring Rubric For Attendance And Class Participation

<u>Topic</u>	<u>Points</u>
Attendance	40
Three quizzes from reading packet	45
Problem set assignments from textbook	65