

UNIVERSITY OF RHODE ISLAND
College of Human Science and Services

TMD 403: Textile Performance

INSTRUCTOR: Dr. Martin Bide

TEXT: "Textile Testing and Analysis", Collier and Epps (Merrill/Prentice Hall 1999) Required

THE COURSE

- Is a required course for Textile Marketing majors, and an upper-level elective for majors in Textiles, Fashion Merchandising and Design. Prerequisites for the course are TMD 303, and TMD 313 (or permission of the instructor).

CLASS FORMAT

The class meetings will include lectures, group discussions and laboratory exercises.

POLICIES

Since this is a small course, attendance is essential and your contribution to discussion is required. You are responsible for making up any lost time, and the degree of sympathy you get if you need help will be in proportion to the amount of effort (attendance, participation) you have applied. This is especially true when applied to the use of laboratory time.

GRADES

There will be three exams during the semester and a final exam (cumulative). Later exams and the final will be take-home. Laboratory work will be divided into two sections. The first is "routine testing" and relates to the hands-on aspects of the routine tests discussed in class. A summary report will be required for this. The second relates to a short project that you will design and carry out. This will be explained in more detail later in the semester. Some homework exercises will be assigned.

3 Exams @ 50 Pts	150
1 Final	100
Lab report (routine testing)	100
Project Proposal	50
Project Report	100
Homework Assignments	100
Total	600

Semester averages of 90% will earn A grades, 80-90% will earn B's, 70-80% will earn C's and 60-70% will earn D's. These limits may be reduced, but will not be increased.

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SYLLABUS

Subject to Change, although the topics listed follow the chapters in the text quite closely. Approximately half the semester will be spent in the lab: it is not practical, however, to decide beforehand that one session a week will be lab and one will be class.

Week	Topic:	Notes:
1	Introduction. Quality	
2	Standard Specifications. Reliability in testing	
3	Sampling and Statistics	
4	Testing Overview	
5	Fabric Characterization	Exam 1
6	Fabric Strength/elongation [No class Monday!]	
7	Abrasion and wear	
8	Effects of refurbishment	
9	Colorfastness Tests	
10	Colorfastness: End-use Exposure	Exam 2
11	Flammability	
12	Absorbancy/Repellency	
13	Comfort, Hand, Drape	
14	Conclusions	Exam 3
		Final exam

TMD 403 Textile Performance: Project

As part of this course you will plan and carry out a short group project based on some aspect of the course content. In the past the Clorox Company sponsored two projects, we designed a potential new test method to evaluate sun protective value of clothing and we spent three years doing projects based on stain repellent finishes for a commercial company. We have also worked on a project to develop a new abrasion test for the US Army. On two occasions, the project has been developed into a paper submitted to AATCC's Student Paper Competition. .

• The group(s) will need to develop.....

1. The plan.

A clear statement of what you are trying to demonstrate, or what question you are trying to answer. In detail, the tests you plan to carry out: what equipment you'll use, how many samples you will test, what you will do with the results from the tests.....

2. The background.

Has anyone done this before? What's going on? What might you expect to happen? Provide some references!

3. The implementation

Doing the tests. Did you plan well, organize logically!?

4. Analysing the results

What do the results mean? Can you explain them?

5. Writing a report.

Can you explain 1-4 clearly, logically, sensibly?

What kind of project?? Here are some ideas that might give you inspiration.

- Is a particular test relevant? Does it reproduce what it is supposed to? Example: AATCC has a test for colorfastness to laundering which uses a single cycle. It is designed to simulate the effect of 5 home laundings. Does it??
- A particular test is not relevant. For certain fabrics/uses, the test does not predict what happens in practice. Can you develop a test that does? (Example: pilling in army battledress).
- I plan to apply a finish to a textile: will it significantly affect the performance? Does it actually do what it is supposed to do? This finish is supposed to reduce wrinkling without releasing formaldehyde. What tests will support this claim? What tests might be needed to see if there are any negative side effects?
- How big a color difference can be tolerated within the various components that make up a garment? What color scale should be used? Does the answer vary from color to color?
- The standard test for wash fastness uses a certain type of detergent. What is the effect of changing the detergent type?
- This fabric is used for making sails. It's wonderful when first manufactured, but what will happen after sun and salt water get on it for a season of sailing?
- I can get the same color on the fabric using three different types of dye: which method is least damaging to the fabric properties?
- Find a range of similar but different fabrics (factors such as yarn count, fabric count, fiber type, weave structure, fabric weight should be considered). Which of these parameters affects abrasion resistance the most? Tensile strength? etc.