

TMGT 8510 System Design and Control Spring 2011 Syllabus

Course Description

This course examines the consequences of global markets, meaning that successful competition in an uneven cultural, economic, political, and social playing field requires deriving cost efficiencies from constantly re-engineered, extended supply chains. The best of the re-engineering takes a total cost analysis approach, viewing all parts of the supply chain as an integrated whole and leaving nothing in isolation. Students are introduced to the design and control techniques that derive from a systems approach ("Graduate Catalog," 2008, p. 21).

Outcomes

The student is expected to understand:

1. The nature of systems; origins, purposes and characteristics.
2. The criteria that influence the design of systems; contexts and dynamics.
3. The control of systems; sense, interpret, decide, act, and learn.

The student will receive a broad view of systems analysis that will enhance their ability to understand and work towards improving the performance of systems. The supply chain constitutes the system of focus.

Business dynamics, analysis, and design tools are introduced.

The course examines system design and control from various points of view in the following context.

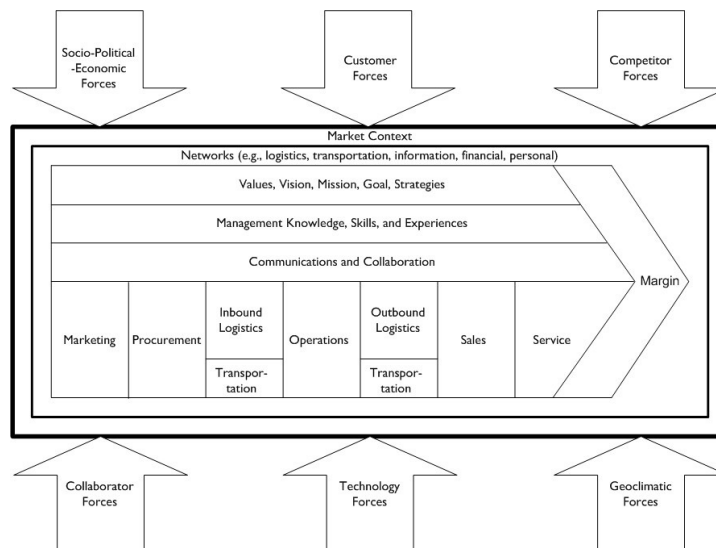


Figure 1 The Context of Interest

The aim is for you to come out of this course with improved knowledge and skills in the subject matter, critical thinking and communications. This is intended to enhance your ability to make a meaningful contribution to improving system performance.

Schedule and Assessment

#	Date	Day	Topic	Short Paper	Medium Paper	Project Paper and Presentation	Quality of Class Participation	Teamwork	Totals
1	1/11/2011	Tuesday	M1: Introduction to the Course and to System Design and Control	10			5		
	1/18/2011	Tuesday	Martin Luther King Holiday - Monday classes are held on Tuesday						
2	1/25/2011	Tuesday	M2: Learning in and About Complex Systems	10			5		
3	2/1/2011	Tuesday	M3: Business Dynamics in Action	10			5		
4	2/8/2011	Tuesday	M4: The Modeling Process	10			5		
5	2/15/2011	Tuesday	M5: Structure and Behavior of Dynamic Systems	10			5		
6	2/22/2011	Tuesday	M6: Causal Loop Diagrams	10			5		
7	3/1/2011	Tuesday	M7: Stocks and Flows	10			5		
8	3/8/2011	Tuesday	M8: Dynamics of Stocks and Flows	10			5		
9	3/15/2011	Tuesday	M9: Closing the Loop: Dynamics of Simple Structures		20		5		
10	3/22/2011	Tuesday	M10: An Introduction to the SCOR Model: Planning and Metrics	10			5		
11	3/29/2011	Tuesday	M11: SCOR Model: As-Is	10			5		
12	4/5/2011	Tuesday	M12: SCOR Model: To-Be	10			5		
13	4/12/2011	Tuesday	M13: SCOR Model: Getting from Here to There		20		5		
14	4/19/2011	Tuesday	M14: Control: What, Why, and How		20		5		
15	4/26/2011	Tuesday	M15: Things Not Yet Mentioned			60	5		
			Points	110	60	60	75	30	335
			Percentage of Total Points	33%	18%	18%	22%	9%	100%

Figure 2 Schedule and Points

1. Critical thinking and written communications skills; the short and medium papers, along with the project paper and presentation.
2. Critical thinking and oral communication skills; the project presentation, in-class discussion
3. Appreciation for the socio-political-economic realities; demonstrated awareness of the impact of globalization on system design and control in the papers, presentation, and in-class discussions
4. Quantitative methods; appropriateness of quantitative methods applied to issue analysis and the quality of that application as demonstrated in the papers, presentation, and in-class discussions
5. Teamwork; degree of leadership demonstrated in initiating and maintaining discussions; contributions as a leader or member on the team project.

Percentages are changes into letter grades according to the following table.

%	GPA	Grade
1.000	4	A
0.930	4	A
0.900	3.7	A-
0.871	3.3	B+
0.830	3	B
0.800	2.7	B-
0.771	2.3	C+
0.730	2	C
0.700	1.7	C-
0.000	0	F

Figure 3 Grading Table

Textbooks and Other Material

Drogan, James. *System Design and Control: TMGT 8510*. McGraw-Hill Primus, 2008, 0-39-041036-5. This is a custom printed version of Parts I, II and VII of Serman, John. *Business Dynamics : Systems Thinking and Modeling for a Complex World*. Boston: Irwin/McGraw-Hill, 2000, 0-072-31135-5.

Bolstorff, Peter, and Robert Rosenbaum. *Supply Chain Excellence: A Handbook for Dramatic Improvement Using the SCOR Model*. 2nd ed. New York: AMACOM-American Management Association, 2007, 0814409261.

Texts are available at the Maritime Ship Store. Copies will be on reserve at the Maritime Luce Library. Lecture notes will be distributed. Copies of the lecture notes are also on reserve at the Maritime Luce Library. Ask for Drogan Notes 2009.0.

Schedule

	Topics and Assignments (due on the date the topic is discussed)
1.	<p>Introduction to the Course and to System Design and Control</p> <p>Reading</p> <p>Lecture Notes</p> <p>Introduction to the Course and to System Design and Control</p> <p>Sgouridis Business dynamics 101</p> <p>Why Webvan Drove Off a Cliff</p> <p>Enron</p> <p>Writing</p> <p>Your views of system design and control (10 points, 3-4 pp)</p> <p>Think about the associated what, why, how, when, where, and why</p>
2.	<p>Learning In and About Complex Systems</p> <p>Reading</p> <p>Sterman</p> <p>Chapter 1: Learning in and About Complex Systems</p> <p>Lecture Notes</p> <p>James Drogan (2008). <i>An Introduction to System Design and Control</i>.</p> <p>Richards J. Heuer Jr, <i>Psychology of Intelligence Analysis</i> (Central Intelligence Agency, 1999) pp iii, v-vii, ix-xi, xiii-xv</p> <p>Jay W. Forrester, <i>Business dynamics and the Lessons of 35 Years</i>, 1991, Sloan School of Management, Massachusetts Institute of Technology</p> <p>Writing</p> <p>Using causal loops, describe the system whereby you learn. (10 points; 2-3 pp)</p> <p>Discussion</p> <p>What advice are Sterman, Heuer, and Forrester giving regarding analysis and systems dynamics?</p> <p>What characterizes complex systems?</p> <p>Review of how we learn, the short paper due today.</p>
3.	<p>Business dynamics in Action</p> <p>Reading</p> <p>Sterman</p>

Topics and Assignments (due on the date the topic is discussed)	
	<p style="text-align: center;">Chapter 2: Business dynamics in Action</p> <p>Writing</p> <p style="padding-left: 40px;">What are the characteristics of systems most amenable to systems thinking? (10 points; 2-3 pp)</p> <p>Discussion</p> <p style="padding-left: 40px;">Review of the characteristics of systems most amenable to systems thinking, the short paper due today.</p>
4.	<p>The Modeling Process</p> <p>Reading</p> <p style="padding-left: 40px;">Sterman</p> <p style="padding-left: 80px;">Chapter 3: The Modeling Process</p> <p style="padding-left: 40px;">Lecture Note</p> <p style="padding-left: 80px;"><i>Cultural Acumen for the Global Manager: Lessons from Project Globe</i>, Mansour Javidan and Robert J. House, "Cultural Acumen for the Global Manager: Lessons from Project Globe," <i>Organizational Dynamics</i>. 29 4 (2001)</p> <p>Writing</p> <p style="padding-left: 40px;">How do the factors identified by House and Javidan affect the approach to modeling? (10 points, 2-3 pp)</p> <p>Discussion</p> <p style="padding-left: 40px;">Review how the factors identified by House and Javidan affect the approach to modeling, the short paper due today.</p>
5.	<p>Structure and Behavior of Dynamic Systems</p> <p>Reading</p> <p style="padding-left: 40px;">Sterman</p> <p style="padding-left: 80px;">Chapter 4: Structure and Behavior of Systems</p> <p style="padding-left: 40px;">Lecture Note</p> <p style="padding-left: 80px;">An Introduction to the Supply Chain</p> <p>Writing</p> <p style="padding-left: 40px;">What are the dynamics in a supply chain? What structures contribute to these dynamics? (10 points, 2-3 pp)</p> <p>Discussion</p> <p style="padding-left: 40px;">Review of the dynamics of the supply chain and the structures that contribute to these dynamics, the short paper due today.</p>
6.	<p>Causal Loop Diagrams</p> <p>Reading</p> <p style="padding-left: 40px;">Sterman</p> <p style="padding-left: 80px;">Chapter 5: Causal Loop Diagrams, pp 135-174</p> <p>Writing</p>

Topics and Assignments (due on the date the topic is discussed)	
	<p>The Oil Crisis of the 1970s. Sterman pp 172-173 (10 points, 2-3 pp)</p> <p>Discussion</p> <p>Review of the Oil Crisis of the 1970s, the short paper due today.</p>
7.	<p>Stocks and Flows</p> <p>Reading</p> <p>Sterman</p> <p>Chapter 6: Stocks and Flows</p> <p>Writing</p> <p>First model of the supply chain. (10 points; 2-3 pp)</p> <p>Discussion</p> <p>Review of first model of the supply chain, the short paper due today.</p>
8.	<p>Dynamics of Stocks and Flows</p> <p>Reading</p> <p>Sterman</p> <p>Chapter 7: Dynamics of Stocks and Flows, pp 231-241</p> <p>Lecture Note</p> <p>Back of the envelop calculations. Henry Petroski, <i>Remaking the World: Adventures in Engineering</i> (New York: Alfred A. Knoff, Inc., 1997) 0-375-40041-9</p> <p>Writing</p> <p>Checking the model. (10 points; 2-3 pp)</p> <p>Discussion</p> <p>Review of checking the model, the short paper due today.</p>
9.	<p>Closing the Loop: Dynamics of Simple Structures</p> <p>Reading</p> <p>Sterman</p> <p>Chapter 8: Closing the Loop: Dynamics of Simple Structures</p> <p>Writing</p> <p><u>The meaning of business dynamics. (20 points, 4-6 pp)</u></p> <p>Discussion</p> <p>Review of the meaning of business dynamics, the short paper due today.</p> <p>Introduction to Bolstorff and Rosenbaum; what it is and how I propose it be used.</p>
10.	<p>An Introduction to the SCOR Model: Planning and Metrics</p> <p>Reading</p> <p>Bolstorff and Rosenbaum</p> <p>Introduction, Chapters 1, 3, 4, and 6</p>

Topics and Assignments (due on the date the topic is discussed)	
	<p style="text-align: center;">Supply Chain Council</p> <p style="text-align: center;">Supply-Chain Operations Reference-Model Overview Booklet Version 9.0</p> <p style="text-align: center;">Supply-Chain_Council, Supply-Chain Operations Reference-Model Overview Booklet Version 9.0, 2008 2001, PDF, Supply-Chain Council, Inc., http://www.supply-chain.org/galleries/public-gallery/SCOR%209.0%20Overview%20Booklet.pdf, [April 30, 2008]</p> <p>Writing</p> <p style="padding-left: 40px;">Map the deliverable from module 7 to SCOR. (10 points, 2-3 pp)</p> <p>Discussion</p> <p style="padding-left: 40px;">Review the map of the deliverables from module 7 to SCOR, the short paper due today.</p> <p style="padding-left: 40px;">Examination of SCOR; the concepts of usefulness and usability</p>
11.	<p>SCOR Model: As-Is</p> <p>Reading</p> <p style="padding-left: 40px;">Bolstorff and Rosenbaum</p> <p style="padding-left: 80px;">Chapters 7, 8, and 9</p> <p>Writing</p> <p style="padding-left: 40px;">Using the concept of SCOR, create an as-is model for the set of processes at Maritime that begins with your interest in the college and ends with the completion of your first term. (10 points, 2-3 pp)</p> <p>Discussion</p> <p style="padding-left: 40px;">Review as-is model, created using the SCOR concepts, for the set of processes at Maritime that begins with your interest in the college and ends with the completion of your first term.</p> <p style="padding-left: 40px;">Translating between company-speak and SCOR-speak.</p>
12.	<p>SCOR Model: To-Be</p> <p>Reading</p> <p style="padding-left: 40px;">Bolstorff and Rosenbaum</p> <p style="padding-left: 80px;">Chapters 12, 13, 14, 15, and 17</p> <p style="padding-left: 40px;">Lecture Note</p> <p style="padding-left: 80px;">Chapter 18, Jo Ellen Gabel and Saul Pilnick, <i>The Shadow Organization in Logistics: The Real World of Culture Change and Supply Chain Efficiency</i> (Oak Brook: Council of Logistics Management, 2002) 0-965-86536-3</p> <p>Writing</p> <p style="padding-left: 40px;">Compare and contrast your model from module 11 with the strategic background for Fowlers, Inc. (Bolstorff and Rosenbaum pp 31-34). (10 points, 2-3 pp)</p> <p>Discussion</p> <p style="padding-left: 40px;">Review the comparison and contrast your model from module 11 with the strategic background for Fowlers, Inc., the short paper due today.</p> <p style="padding-left: 40px;">Finding out how things really work, then determining what to do with that information.</p>

Topics and Assignments (due on the date the topic is discussed)	
13.	<p>SCOR Model: Getting from Here to There</p> <p>Reading None</p> <p>Writing <u>Integrate business dynamics with the SCOR. (20 points, 4-6 pp)</u></p> <p>Discussion Review the results of integrating business dynamics with SCOR, the short paper due today.</p>
14.	<p>Control: What, Why, and How</p> <p>Reading Lecture Note A Note on Control</p> <p>Writing <u>Response to questions raised by the discussion of the short papers on the integration of business dynamics with SCOR. (20 points, 2-3 pp)</u></p> <p>Discussion The nature of the relationship between metrics and business dynamics.</p>
15.	<p>Things Not Yet Mentioned</p> <p>Discussion Data Planning Change Management Financial versus Logical Implementation Planning</p> <p>Project Deliverables Presentation and Paper (60 points, 20-25 pp paper; presentation an abstract of the paper)</p>

Detailed descriptions and instructions for the written assignments and project deliverables will be provided.

A Note on Integrity

Introduction

Please read Maritime's Academic Integrity policy beginning on page 7 of the *Maritime College Code of Conduct* ([http://www.sunymaritime.edu/documents/2007/8/6/Code of Conduct.pdf](http://www.sunymaritime.edu/documents/2007/8/6/Code%20of%20Conduct.pdf)). It is the student's responsibility to understand his or her rights and responsibilities under this policy.

Integrity is a core value upon which acceptable business behavior is based. Integrity is about honesty, keeping one's commitments, and consideration of the rights and needs of others. In short, can your business partners rely upon you?

The lack of integrity in the academic community means you may fail a course, in business you may be passed over for a promotion; in the academic community you may be placed on probation, in business

you may be placed on an improvement program; in the academic community you may be expelled, in the business community you may lose a job; and finally, in the business world, you may be sent to jail.

For an eloquent statement on integrity I would like you to read the *Letter to Students re Academic Integrity* by Bill Taylor (http://www.baruch.cuny.edu/facultyhandbook/taylor_letter.htm).

You are expected to learn and practice the habits associated with high integrity. Do it now, do not defer or delay, or neglect it, for you will not pass this way again.

My experience is that it is fairly easy to establish a student's writing style and it is fairly evident when the student is submitting work that is not in accordance with this style. The Internet is a wonderful resource for determining whether plagiarism is taking place. I encourage you to use the network for research, but find your own words, express your own analysis, conclusions, and recommendations. Blatant plagiarism tends to result in zero points for the assignment. My advice is to not do it. If you found it on the Internet, I can find it on the Internet.

I trust that it is clear that Maritime College, the Department of Global Business and Transportation, and I will not tolerate unethical behavior and academic dishonesty.

A Personal Note on Research and Plagiarism

I encourage students to engage in research on topics under discussion, to use all available tools (e.g., internet, interviews) to broaden and deepen their understanding of issues and alternative resolutions. I encourage this research to be shared with their classmates and with me. All this, I believe, contributes to a higher quality learning experience and the development of healthy habits of lifelong learning and team play.

But there are lines that separate the legitimacy of research and sharing, on the one side, and plagiarism on the other side.

I want, in this brief note, to examine this line and offer some personal views on where it lies and how to know when you are about to cross that line.

An Example

A student made the following submission in my TMGT 7200 MIS in Transportation Spring 2007 class:

Subject: Individual cultures challenge corporate culture

I agree that individual cultures basically affect corporate cultures.

A corporate culture is an intuitive concept. Everyone knows that different organizations seem to feel differently from each other. This feeling seems to be a gestalt or a product of several factors or influencing forces. Among these factors, the tasks that the organization undertakes, it's standing in the community and the personalities of the staff and management.

Briefly, the corporate culture is highly complex, consisting of many confounding variables and of great importance with regard to the efficient pursuit of change and improvement. On the other hand, individual culture could be considered (particularly organizational leaders) as an attempt to change the culture of their organizations to fit their own personality preferences. Opportunities, motives and anecdotes describing the efforts of individuals to change their organization's culture are presented. There is sufficient evidence exist that individuals do attempt (sometimes succeed) in changing their organizations' culture.

Teachers very quickly learn the communication styles of students and can quickly realize when that style changes. In this case, there was something in the grammar and syntax of the submission that raised some question in my mind as to whether this was really the student's thoughts and words.

A bit of work with Google gave me:

An organization's culture is an intuitive concept. Everyone knows that different organizations seem to 'feel' differently from each other. This 'feeling' seems to be a Gestalt or a product of several factors or influencing

forces. Among these factors are, the tasks that the organization undertakes, it's standing in the community and the personalities of the staff and management.

The truth of the matter is that an organization's culture is highly complex, consisting of many confounding variables and of great importance with regard to the efficient pursuit of change and improvement. No matter how well developed a managerial change strategy is it can be completely destroyed if the organisational culture rejects it.

In an attempt to understand the forces and influences at work within a corporate culture a model has to be formulated. The model should behave in the same way as the cultural phenomenon that it represents. Further the model should inculcate the factors and relationships that can be observed as being formative drivers of organizational culture. As culture is rather ethereal the model can only be representative, which suggests that it cannot be a facsimile of a given culture.

Source: Dudley Consulting Inc., Company Culture, <http://dudleyconsulting-inc.com/CultureHome.html> [June 11, 2007]

The underline text in the student's response and the text from Dudley Consulting is either exactly or substantially the same.

That text not underscored in the student's response is very similar to:

The relationship between individual personality and organizational culture is a topic typically considered in theoretical terms. This article addresses empirical evidence relating to one aspect of this relationship. It explores the hypothesis that individuals (particularly organizational leaders) attempt to change the culture of their organizations to fit their own personality preferences. Contemporary definitions of culture are presented, and five of the better known mechanisms for categorizing individual personality types are briefly described. Opportunities, motives and anecdotes describing the efforts of individuals to change their organization's culture are presented. The article postulates that there is sufficient evidence to conclude that individuals do attempt (and sometimes succeed) in changing their organizations' culture.

Possible Source: Gerald L. Barkdoll , Individual Personality And Organizational Culture Or "Let's Change This Place So I Feel More Comfortable", <http://www.pamij.com/barkdoll.html> [June 11, 2007]. I didn't discover this until I wrote this note.

My response to the student was:

The entire second paragraph and the first sentence of the third paragraph seems to be taken from Dudley Consulting Inc (<http://dudleyconsulting-inc.com/CultureHome.html>).

The student also received a low mark for the submission.

The assigned discussion topic was:

Subject: TMGT 7200.13 Discussion of Cultural Issues.

Project GLOBE identifies a set of Dimensions of Culture.

- Assertiveness
- Future Orientation
- Gender Differentiation
- Uncertainty Avoidance
- Power Distance
- In-Group Collectivism
- Performance Orientation
- Humane Orientation

Discuss how these dimensions might affect decisions regarding management information systems.

When you are ready to participate in the discussion, click the RESPOND link below.

The Issues

1. The research finding was not distinguished in any way (e.g., quotes, italics, indentation) nor was the source cited. Given that there is a minor amount of rearrangement of the words, one might reasonably conclude that there was a conscious effort by the student to pass these thoughts and words off as the student's own.
2. While the word "culture" was used in the response, it was not in the context of the discussion topic. This calls into question whether the student the assigned lecture note and discussion topic. Was the student really putting forth any effort here or simple trying to fill some space? To be fair to the student, the response was triggered by a post from another student regarding corporate culture. Still, Students undergo an obligation to help keep the discussions on track.
3. The student provides no rationale and words explaining why this research is relevant to the discussion.
4. Other than the subject line and the first sentence, all text is from other sources. Something on the order of 8 percent of the submission is the student's own words.

The Lines

I draw the lines across which students venture at their peril as follows:

1. The work of others always needs to be distinguished from the student's own work and the original author needs to be given credit. There are acceptable ways to do this. If in doubt, see a librarian or your teacher. Good references in this area include (Turabian) and (Booth, Williams and Colomb).

I don't expect thesis and dissertation layout and quality in citations, but I do expect to that the attribution will include the author and source.

Failure to distinguish and attribute indicates to me the student is willfully using the work of others as the student's own. I simply will not accept this.

2. If the work of others, even if properly distinguished and attributed, becomes more than one-third of the total submission, then I begin to become concerned. I am interested in assessing the student's comprehension of the subject matter as expressed in the student's own ideas and words, not the ideas and words of others.

The student therefore needs to surround the cited research with narrative that explains why the research is relevant and how it is woven into the fabric of the discussion (or other assignment).

Perhaps it's easier to remember the lines through the following graphic.

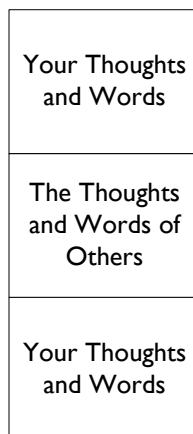


Figure 4 Thoughts and Words

Summary

There have been a large number of words written regarding unethical behavior in education. Other documents have pointed to these. You are particularly referred to the Maritime position on this matter.

But I think it important to have some practical pointers particularly relevant to my style of teaching and what I expect from students.

It's all pretty simple really.

James Drogan
June 11, 2007

Bibliography

Booth, Wayne C., Joseph M. Williams, and Gregory G. Colomb. The Craft of Research. Second Edition ed: The University of Chicago Press, 2003, 0-226-06568-5

Turabian, Kate L. A Manual for Writers of Term Papers, Theses, and Dissertations. Sixth Edition ed: The University of Chicago Press, 1996, 0-226-81627-3

Cut and Paste

I encourage you to do research, to find relevant articles on the internet or elsewhere and bring them to our attention. Using the internet to augment our knowledge of the subject matter is very powerful.

However, let me caution you to not simply cut and paste what you find without 1.) proper attribution of the source, and 2.) some words of your own as to why you think the material relevant to our discussions.

The first case smacks of trying to pass off the thoughts and words of others as your own. This can be considered plagiarism. Plagiarism will not be tolerated. But you've heard this before.

If you can find it on the internet, I can find it on the internet.

In the second case I want to assess your thoughts and words, not those of others. I hope that this is what you would also want done.

When in doubt on any of what I have mentioned here or elsewhere, ask for clarification. I am not lenient when it comes to unethical behavior.

Contacting the Professor

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Fort, South Bastion, A-Deck, Graduate Program Faculty office (above GBAT office)

Office hours posted the right of the professor's office door or online at
<http://www.sunymaritime.edu/facultystaff.aspx?id=22>