STA 287 BUSINESS ANALYTICS AND DECISION MODELING

SPRING 2014

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Course Objectives

This course introduces some of the basic concepts in business analytics that are typically implemented in spreadsheet models. It will be integrated with the Valuation course in finance, but will also be accessible to students from operations and supply chain management, information systems, marketing, and other majors. We discuss methods that are used extensively in business organizations to solve large, structured problems. Such methods generate results that support decision-making at all levels of the organization over various time horizons.

Specific topics to be covered will include risk analysis using spreadsheet sensitivity analysis and Monte Carlo simulation. We will also introduce decision trees as a tool to analyze and evaluate projects with management flexibility, and use decision trees to motivate real options analysis with binomial trees and lattices. In addition, we will use the Excel Solver to analyze optimization problems that will include examples from business operations and finance, including supply chain projects and portfolio optimization.

Secondarily, these methodologies should improve your own problem solving skills. We stress an approach to problem solving that helps the decision-maker to (a) consider a richer set of alternatives, (b) understand and question assumptions, and (c) consider diverse measures of performance. The teaching approach will include lectures, skill-building exercises, and cases with the support of several software packages available on the PC in *Microsoft Excel,* including the DecisionTools Suite.

Leadership and this Course

The Texas MBA program is designed to develop influential business leaders. The MBA Program has identified four fundamental and broad pillars of leadership: knowledge and understanding, communication and collaboration, responsibility and integrity, and a worldview of business and society.

In this course, you will enhance your knowledge and understanding of business analytics and spreadsheet modeling and how this analysis helps leaders understand and manage their business. Through class discussion, informal study groups, and formal group projects (written and oral) you will enhance your communication and collaboration skills. You will learn how high quality, credible analytical models enhance the ability of managers to lead their organizations effectively and with integrity.

Materials

Required:

Albright, S. C., W. L. Winston, C. Zappe. *Data Analysis and Decision Making.* (ISBN: 0-538-47612-5)
Note: Either the third edition (3e) or the fourth edition (4e) will be fine. You do not need the software with the textbook.

Titman, T. and J. D. Martin. 2011, 2nd Edition. *Valuation.* Boston, MA: Pearson/Addison Wesley.

Course Requirements and Grading

Your grade in the course will be determined as follows:

	Percent
Three Individual Written Case Responses	10 percent each
Two Group Projects and Presentations	10 percent each
Final	50 percent

The MBA Programs Committee approved the following target grade distribution for all Core and Flex Core courses: A (4.0) 25%, A- (3.67) 20%, B+ (3.33) 15%, B (3.0) 35%, B- or below (2.67) 5%. This course uses that target distribution as a guideline for establishing final grades.

Description of Requirements

Written Case Responses

Three cases will be completed as individual assignments. For these cases, please present your recommendation and your justification for that recommendation concisely in two pages, with references to detailed supporting material (e.g., figures, tables, and equations) in an appendix. The entire report should use 1.5 line spacing, 12-point font, and one-inch margins. No late case assignments will be accepted since solutions will be posted or covered in class on the day they are due.

Two cases will be completed in self-selected groups of three to five people. Please form your case groups as soon as possible. If you have problems finding a group, please see me. At minimum, your case write-up (presentation) should address the questions posed in the case assignment. Each group should prepare a 20-minute presentation that that is responsive to the issues raised in the case. I will ask a couple of groups to give their presentation in class, so please bring a “thumb drive” with a PowerPoint presentation for use on the classroom computer. Prior to class, each group should hand in the following:

- A copy of the presentation you prepared. If there are comments you planned to make but did not put on the slides, you may include them in the “speaker notes’ feature of PowerPoint and then print the notes along with the presentation.
- Please include the following supporting information in an appendix to your presentation:

  Two copies of your spreadsheet showing row and column headings, one with values and one with formulas (a sample of the relevant cells on large spreadsheets rather than the entire spreadsheet)

  An @Risk report documenting assumptions and results for the analysis.

No late case assignments will be accepted since solutions will be posted or covered in class on the day they are due. If you encounter a grading problem on a case study, please see me.

For each class session, you should familiarize yourself with the topics covered in the assigned chapter of the textbook. In addition, I will assign additional problems that may be worked for self-study, but they are not to be turned in for grading. There will be a final examination on the Friday following the last regularly scheduled class.

McCombs Classroom Professionalism Policy

The highest professional standards are expected of all members of the McCombs community. The collective class reputation and the value of the Texas MBA experience hinges on this.

You should treat the Texas MBA classroom as you would a corporate boardroom.

Faculty are expected to be professional and prepared to deliver value for each and every class session. Students are expected to be professional in all respects.

The Texas MBA classroom experience is enhanced when:

- **Students arrive on time.** On time arrival ensures that classes are able to start and finish at the scheduled time. On time arrival shows respect for both fellow students and faculty and it enhances learning by reducing avoidable distractions.
- **Students display their name cards.** This permits fellow students and faculty to learn names, enhancing opportunities for community building and evaluation of in-class contributions.
- **Students do not confuse the classroom for the cafeteria.** The classroom (boardroom) is not the place to eat your breakfast tacos, wraps, sweet potato fries, or otherwise set up for a picnic. Please plan accordingly. Recognizing that back-to-back classes sometimes take place over the lunch hour, energy bars and similar snacks are permitted. Please be respectful of your fellow students and faculty in your choices.
- **Students minimize unscheduled personal breaks.** The learning environment improves when disruptions are limited.
- **Students are fully prepared for each class.** Much of the learning in the Texas MBA program takes place during classroom discussions. When students are not prepared they cannot contribute to the overall learning process. This affects not only the individual, but their peers who count on them, as well.
- **Students attend the class section to which they are registered.** Learning is enhanced when class sizes are optimized. Limits are set to ensure a quality experience. When section hopping takes place some classes become too large and it becomes difficult to contribute. When they are too small, the breadth of experience and opinion suffers.
- **Students respect the views and opinions of their colleagues.** Disagreement and debate are encouraged. Intolerance for the views of others is unacceptable.
- **Laptops should be used only for classroom purposes.** When students are surfing the web, responding to e-mail, instant messaging each other, and otherwise not devoting their full attention to the topic at hand they are doing themselves and their peers a major disservice. Those around them face additional distraction. Fellow students cannot benefit from the insights of the students who are not engaged. Faculty office hours are spent going over class material with students who chose not to pay attention, rather than truly adding value by helping students who want a better understanding of the material or want to explore the issues in more depth. Students with real needs may not be able to obtain adequate help if faculty time is spent repeating what was said in class. There are often cases where learning is enhanced by the use of laptops in class. Faculty will let you know when it is appropriate to use them. In such cases, professional behavior is exhibited when misuse does not take place.
- **Phones and wireless devices are turned off.** We've all heard the annoying ringing in the middle of a meeting. Not only is it not professional, it cuts off the flow of discussion when the search for the offender begins. When a true need to communicate with someone outside of class exists (e.g., for some medical need) please inform the professor prior to class.

Remember, you are competing for the best faculty McCombs has to offer. Your professionalism and activity in class contributes to your success in attracting the best faculty to this program.

Academic Dishonesty

I have no tolerance for acts of academic dishonesty. Such acts damage the reputation of the school and the degree and demean the honest efforts of the majority of students. The minimum penalty for an act of academic dishonesty will be a zero for that assignment or exam.

The responsibilities for both students and faculty with regard to the Honor System are described on http://mba.mccombs.utexas.edu/students/academics/honor/index.asp and on the final pages of this syllabus. As the instructor for this course, I agree to observe all the faculty responsibilities described therein. During Orientation, you signed the Honor Code Pledge. In doing so, you agreed to observe all of the student responsibilities of the Honor Code. If the application of the Honor System to this class and its assignments is unclear in any way, it is your responsibility to ask me for clarification.

As specific guidance for this course, you should consider the *writing* of all examinations to be an individual effort. Group *preparation* for examinations and some case assignments is acceptable and encouraged. Homework

assignments are to be turned in individually but I encourage you to work together in answering the questions. You should, however, develop your own answer and not cut and paste the work of others.

Students with Disabilities

Upon request, the University of Texas at Austin provides appropriate academic accommodations for qualified students with disabilities. Services for Students with Disabilities (SSD) is housed in the Office of the Dean of Students, located on the fourth floor of the Student Services Building. Information on how to register, downloadable forms, including guidelines for documentation, accommodation request letters, and releases of information are available online at http://deanofstudents.utexas.edu/ssd/index.php. Please do not hesitate to contact SSD at (512) 471-6259, VP: (512) 232-2937 or via e-mail if you have any questions.

Schedule

Business Analytics Syllabus Spring 2014 - Dyer

Week	Class Meeting	Topic	Material
1	1	Introduction to Sensitivity Analysis: Sensitivity analysis with data tables and with a tornado diagram. Breakeven analysis with a spreadsheet using Goal Seek. Using the scenario manager for more complex scenarios.	T&M, Ch 3 pp. 54-62, 71, 72
	2	Monte Carlo Simulation: Understand the basic concepts of Monte Carlo simulation using computer programs, including the ideas of random number generation. Introduction to @Risk software.	T&M, Ch 3, pp. 62-75 and AWZ, Ch 16, Sections 16.0-16.3 (Ch 15 in 4e)
2	3	Spreadsheet Simulation Using @Risk (Graphs, Correlations, Sensitivity Analysis): Develop the ability to use an add-in simulation software program to evaluate risks in the context of EXCEL spreadsheets.	AWZ, Ch 16, Sections 16.5 and 16.6 (Ch 15 in 4e)
	4	Spreadsheet Simulation Using @Risk: Develop an understanding of the use simulation as tool to evaluate the risks associated with real-world projects: Bidding decisions and capacity decisions. *Individual Assignment Due: The Northstar Case*	AWZ, Ch 17, Section 17.2 (Ch 16 in 4e)
3	5	Spreadsheet Simulation Using @Risk: Investment decisions, modeling commodity prices, valuing financial and real options	AWZ, Ch 17, Section 17.3 (Ch 16 in 4e)
	6	Spreadsheet Simulation Using @ Risk: Investment decisions continued, portfolio analysis, value at risk (VAR models)	AWZ, Ch 17, Section 17.3 (Ch 16 in 4e)
4	7	Project Flexibility and Decision Trees: Decision trees as a means of structuring risky problems with options. Develop a skill in using PrecisionTree for evaluating risky decisions. *Group Assignment Due: Intrinergy (A) and (B)*	AWZ, Ch. 7, Sections 7.1-7.3, (Ch 6 in 4e)
	8	Estimating the Value of Information Regarding Project Uncertainties: Ability to determine when it is worthwhile to obtain information, and how much that information is worth.	AWZ, Ch. 7, Sections 7.4 and 7.5 (Ch 6 in 4e)
5	9	Value of Information and Bayes Rule: An understanding of the concept of subjective probabilities, and the methods useful in assessing them. *Individual Assignment Due: Orion Case*	AWZ, Ch. 7, Sections 7.4 and 7.5 (Ch 6 in 4e)
	10	Evaluating Options with PrecisionTree: Provide an understanding of the use of decision and risk analysis for the evaluation of real world projects and opportunities.	T&M, Ch 11 and Appendices A, B, and C
6	11	Valuing Real Options with Risk Neutral Probabilities and Binomial Trees: Approximating a stochastic process with binomial trees. The link between binomial trees and lattices. *Group Assignment Due: Scor e-Stor*	T&M, Ch 12

	12	Optimization with Solver: Learn to use the Excel Solver. Develop the ability to understand and interpret linear programming problems	AWZ, Ch. 14, Sections 14.1-14.3, 14.7 (Ch 13 in 4e)
7	13	Optimization with Solver: Sensitivity analysis and marginal pricing of resources	AWZ, Ch. 14, Section 14.4 (Ch 13 in 4e)
	14	Applications of Optimization Models: Understand how optimization models can be used in practice. Applications to operations and supply chain models, capital budgeting, pension fund management and portfolio optimization. *Individual Assignment Due: Chadpur Enterprises Limited, Steel Division*	AWZ, Chapter 15, Sections 15.4-15.6, 15.8 (Ch 14 in 4e)

Final Examination on Thursday evening following last class

Honor Code Purpose

Academic honor, trust and integrity are fundamental to The University of Texas at Austin McCombs School of Business community. They contribute directly to the quality of your education and reach far beyond the campus to your overall standing within the business community. The University of Texas at Austin McCombs School of Business Honor System promotes academic honor, trust and integrity throughout the Graduate School of Business. The Honor System relies upon The University of Texas Student Standards of Conduct (Chapter 11 of the Institutional Rules on Student Service and Activities) for enforcement, but promotes ideals that are higher than merely enforceable standards. Every student is responsible for understanding and abiding by the provisions of the Honor System and the University of Texas Student Standards of Conduct. The University expects all students to obey the law, show respect for other members of the university community, perform contractual obligations, maintain absolute integrity and the highest standard of individual honor in scholastic work, and observe the highest standards of conduct. Ignorance of the Honor System or The University of Texas Student Standards of Conduct is not an acceptable excuse for violations under any circumstances.

The effectiveness of the Honor System results solely from the wholehearted and uncompromising support of each member of the Graduate School of Business community. Each member must abide by the Honor System and must be intolerant of any violations. The system is only as effective as you make it.

Faculty Involvement in the Honor System

The University of Texas at Austin McCombs School of Business Faculty's commitment to the Honor System is critical to its success. It is imperative that faculty make their expectations clear to all students. They must also respond to accusations of cheating or other misconduct by students in a timely, discrete and fair manner. We urge faculty members to promote awareness of the importance of integrity through in-class discussions and assignments throughout the semester.

Expectations Under the Honor System

Standards

If a student is uncertain about the standards of conduct in a particular setting, he or she should ask the relevant faculty member for clarification to ensure his or her conduct falls within the expected scope of honor, trust and integrity as promoted by the Honor System. This applies to all tests, papers and group and individual work. Questions about appropriate behavior during the job search should be addressed to a professional member of the Career Services Office. Below are some of the specific examples of violations of the Honor System.

Lying

Lying is any deliberate attempt to deceive another by stating an untruth, or by any direct form of communication to include the telling of a partial truth. Lying includes the use or omission of any information with the intent to deceive or mislead. Examples of lying include, but are not limited to, providing a false excuse for why a test was missed or presenting false information to a recruiter.

Stealing

Stealing is wrongfully taking, obtaining, withholding, defacing or destroying any person's money, personal property, article or service, under any circumstances. Examples of stealing include, but are not limited to, removing course material from the library or hiding it from others, removing material from another person's mail folder, securing for one's self unattended items such as calculators, books, book bags or other personal property. Another form of stealing is the duplication of copyrighted material beyond the reasonable bounds of "fair use." Defacing (e.g., "marking up" or highlighting) library books is also

considered stealing, because, through a willful act, the value of another's property is decreased. (See the appendix for a detailed explanation of "fair use.")

Cheating

Cheating is wrongfully and unfairly acting out of self-interest for personal gain by seeking or accepting an unauthorized advantage over one's peers. Examples include, but are not limited to, obtaining questions or answers to tests or quizzes, and getting assistance on case write-ups or other projects beyond what is authorized by the assigning instructor. It is also cheating to accept the benefit(s) of another person's theft(s) even if not actively sought. For instance, if one continues to be attentive to an overhead conversation about a test or case write-up even if initial exposure to such information was accidental and beyond the control of the student in question, one is also cheating. If a student overhears a conversation or any information that any faculty member might reasonably wish to withhold from the student, the student should inform the faculty member(s) of the information and circumstance under which it was overheard.

Actions Required for Responding to Suspected and Known Violations

As stated, everyone must abide by the Honor System and be intolerant of violations. If you suspect a violation has occurred, you should first speak to the suspected violator in an attempt to determine if an infraction has taken place. If, after doing so, you still believe that a violation has occurred, you must tell the suspected violator that he or she must report himself or herself to the course professor or Associate Dean of the Graduate School of Business. If the individual fails to report himself or herself within 48 hours, it then becomes your obligation to report the infraction to the course professor or the Associate Dean of the Graduate School of Business. Remember that although you are not required by regulation to take any action, our Honor System is only as effective as you make it. If you remain silent when you suspect or know of a violation, you are approving of such dishonorable conduct as the community standard. You are thereby precipitating a repetition of such violations.

The Honor Pledge

The University of Texas at Austin McCombs School of Business requires each enrolled student to adopt the Honor System. The Honor Pledge best describes the conduct promoted by the Honor System. It is as follows:

"I affirm that I belong to the honorable community of The University of Texas at Austin Graduate School of Business. I will not lie, cheat or steal, nor will I tolerate those who do."

"I pledge my full support to the Honor System. I agree to be bound at all times by the Honor System and understand that any violation may result in my dismissal from the Graduate School of Business."

The following pages provide specific guidance about the Standard of Academic Integrity at the University of Texas at Austin. Please read it carefully and feel free to ask me any questions you might have.

Excerpts from the University of Texas at Austin Office of the Dean of Students website
(http://deanofstudents.utexas.edu/sjs/acint_student.php)

The Standard of Academic Integrity

A fundamental principle for any educational institution, academic integrity is highly valued and seriously regarded at The University of Texas at Austin, as emphasized in the standards of conduct. More specifically, you and other students are expected to "maintain absolute integrity and a high standard of individual honor in scholastic work" undertaken at the University (Sec. 11-801, *Institutional Rules on Student Services and Activities*). This is a very basic expectation that is further reinforced by the University's Honor Code. At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:

- acknowledge the contributions of other sources to your scholastic efforts;
- complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them;
- follow instructions for assignments and exams, and observe the standards of your academic discipline; and
- avoid engaging in any form of academic dishonesty on behalf of yourself or another student.

For the official policies on academic integrity and scholastic dishonesty, please refer to Chapter 11 of the *Institutional Rules on Student Services and Activities*.

What is Scholastic Dishonesty?

In promoting a high standard of academic integrity, the University broadly defines scholastic dishonesty—basically, all conduct that violates this standard, including *any act designed to give an unfair or undeserved academic advantage*, such as:

- Cheating
- Plagiarism
- Unauthorized Collaboration
- Collusion
- Falsifying Academic Records
- Misrepresenting Facts (e.g., providing false information to postpone an exam, obtain an extended deadline for an assignment, or even gain an unearned financial benefit)
- Any other acts (or attempted acts) that violate the basic standard of academic integrity (e.g., multiple submissions—submitting essentially the same written assignment for two courses without authorization to do so)

Several types of scholastic dishonesty—unauthorized collaboration, plagiarism, and multiple submissions—are discussed in more detail on this Web site to correct common misperceptions about these particular offenses and suggest ways to avoid committing them.

For the University's official definition of scholastic dishonesty, see Section 11-802, *Institutional Rules on Student Services and Activities*.

Unauthorized Collaboration

If you work with another person on an assignment for credit *without the instructor's permission to do so*, you are engaging in unauthorized collaboration.

- This common form of academic dishonesty can occur with all types of scholastic work—papers, homework, tests (take-home or in-class), lab reports, computer programming projects, or any other assignments to be submitted for credit.
- For the University's official definitions of unauthorized collaboration and the related offense of collusion, see Sections 11-802(c)(6) & 11-802(e), *Institutional Rules on Student Services and Activities*.

Some students mistakenly assume that they can work together on an assignment as long as the instructor has not expressly prohibited collaborative efforts.

- Actually, students are expected to complete assignments independently unless the course instructor indicates otherwise. So working together on assignments is *not* permitted unless the instructor specifically approves of any such collaboration.

Unfortunately, students who engage in unauthorized collaboration tend to justify doing so through various rationalizations. For example, some argue that they contributed to the work, and others maintain that working together on an assignment "helped them learn better."

- The instructor—not the student—determines the purpose of a particular assignment *and* the acceptable method for completing it. Unless working together on an assignment has been specifically authorized, always assume it is not allowed.
- Many educators do value group assignments and other collaborative efforts, recognizing their potential for developing and enhancing specific learning skills. And course requirements in some classes do consist primarily of group assignments. But the expectation of individual work is the prevailing norm in many classes, consistent with the presumption of original work that remains a fundamental tenet of scholarship in the American educational system.

Some students incorrectly assume that the degree of any permissible collaboration is basically the same for all classes.

- The extent of any permissible collaboration can vary widely from one class to the next, even from one project to the next within the same class.
- Be sure to distinguish between collaboration that is authorized for a particular assignment *and* unauthorized collaboration that is undertaken for the sake of expedience or convenience to benefit you and/or another student. By failing to make this key distinction, you are much more likely to engage in unauthorized collaboration. To avoid any such outcome, always seek clarification from the instructor.

Unauthorized collaboration can also occur in conjunction with group projects.

- How so? If the degree or type of collaboration exceeds the parameters expressly approved by the instructor. An instructor may allow (or even expect) students to work together on one stage of a group project but require independent work on other phases. Any such distinctions should be strictly observed.

Providing another student unauthorized assistance on an assignment is also a violation, even without the prospect of benefiting yourself.

- If an instructor did not authorize students to work together on a particular assignment *and* you help a student complete that assignment, you are providing unauthorized assistance and, in effect, facilitating an act of academic dishonesty. Equally important, you can be held accountable for doing so.
- For similar reasons, you should not allow another student access to your drafted or completed assignments unless the instructor has permitted those materials to be shared in that manner.

Plagiarism

Plagiarism is another serious violation of academic integrity. In simplest terms, this occurs if you represent *as your own work* any material that was obtained from another source, regardless how or where you acquired it.

- Plagiarism can occur with *all* types of media—scholarly or non-academic, published or unpublished—written publications, Internet sources, oral presentations, illustrations, computer code, scientific data or analyses, music, art, and other forms of expression. (See Section 11-802(d) of the *Institutional Rules on Student Services and Activities* for the University's official definition of plagiarism.)
- Borrowed material from written works can include entire papers, one or more paragraphs, single phrases, or any other excerpts from a variety of sources such as books, journal articles, magazines, downloaded Internet documents, purchased papers from commercial writing services, papers obtained from other students (including homework assignments), etc.
- As a general rule, the use of any borrowed material results in plagiarism if the original source is not properly acknowledged. So you can be held accountable for plagiarizing material in either a final submission of an assignment *or* a draft that is being submitted to an instructor for review, comments, and/or approval.

Using *verbatim* material (e.g., exact words) without proper attribution (or credit) constitutes the most blatant form of plagiarism. However, other types of material can be plagiarized as well, such as *ideas* drawn from an original source or even its *structure* (e.g., sentence construction or line of argument).

- Improper or insufficient paraphrasing often accounts for this type of plagiarism. (See additional information on paraphrasing.)

Plagiarism can be committed intentionally *or* unintentionally.

- Strictly speaking, any use of material from another source without proper attribution constitutes plagiarism, regardless why that occurred, and any such conduct violates accepted standards of academic integrity.
- Some students deliberately plagiarize, often rationalizing this misconduct with a variety of excuses: falling behind and succumbing to the pressures of meeting deadlines; feeling overworked and wishing to reduce their workloads; compensating for actual (or perceived) academic or language deficiencies; and/or justifying plagiarism on other grounds.
- But some students commit plagiarism without intending to do so, often stumbling into negligent plagiarism as a result of sloppy notetaking, insufficient paraphrasing, and/or ineffective proofreading. Those problems, however, neither justify nor excuse this breach of academic standards. By misunderstanding the meaning of plagiarism and/or failing to cite sources accurately, you are much more likely to commit this violation. Avoiding that outcome requires, at a minimum, a clear understanding of plagiarism *and* the appropriate techniques for scholarly attribution. (See related information on paraphrasing; notetaking and proofreading; and acknowledging and citing sources.)

By merely changing a few words or rearranging several words or sentences, you are *not* paraphrasing. Making minor revisions to borrowed text amounts to plagiarism.

- Even if properly cited, a "paraphrase" that is too similar to the original source's wording and/or structure is, in fact, plagiarized. (See additional information on paraphrasing.)

Remember, your instructors should be able to clearly identify which materials (e.g., words and ideas) are your own *and* which originated with other sources.

- That cannot be accomplished without proper attribution. You must give credit where it is due, acknowledging the sources of any borrowed passages, ideas, or other types of materials, and enclosing any verbatim excerpts with quotation marks (using block indentation for longer passages).

Plagiarism & Unauthorized Collaboration

Plagiarism **and** unauthorized collaboration **are often committed jointly.**

By submitting *as your own work* any unattributed material that you obtained from other sources (including the contributions of another student who assisted you in preparing a homework assignment), you have committed plagiarism. And if the instructor did not authorize students to work together on the assignment, you have also engaged in unauthorized collaboration. Both violations contribute to the same fundamental deception—representing material obtained from another source as your own work.

Group efforts that extend beyond the limits approved by an instructor frequently involve plagiarism in addition to unauthorized collaboration. For example, an instructor may allow students to work together while researching a subject, but require each student to write a separate report. If the students collaborate while writing their reports *and* then submit the products of those joint efforts as individual works, they are guilty of unauthorized collaboration as well as plagiarism. In other words, the students collaborated on the written assignment without authorization to do so, and also failed to acknowledge the other students' contributions to their own individual reports.

Multiple Submissions

Submitting the same paper (or other type of assignment) for two courses *without prior approval* represents another form of academic dishonesty.

You may not submit a substantially similar paper or project for credit in two (or more) courses unless expressly authorized to do so by your instructor(s). (See Section 11-802(b) of the *Institutional Rules on Student Services and Activities* for the University's official definition of scholastic dishonesty.)

You may, however, re-work or supplement previous work on a topic with the instructor's approval.

Some students mistakenly assume that they are entitled to submit the same paper (or other assignment) for two (or more) classes simply because they authored the original work.

Unfortunately, students with this viewpoint tend to overlook the relevant ethical and academic issues, focusing instead on their own "authorship" of the original material and personal interest in receiving essentially double credit for a single effort.

Unauthorized multiple submissions are inherently deceptive. After all, an instructor reasonably assumes that any completed assignments being submitted for credit were actually prepared for that course. Mindful of that assumption, students who "recycle" their own papers from one course to another make an effort to convey that impression. For instance, a student may revise the original title page or imply through some other means that he or she wrote the paper for that particular course, sometimes to the extent of discussing a "proposed" paper topic with the instructor or presenting a "draft" of the paper before submitting the "recycled" work for credit.

The issue of plagiarism is also relevant. If, for example, you previously prepared a paper for one course and then submit it for credit in another course without citing the initial work, you are committing plagiarism—essentially "self-plagiarism"—the term used by some institutions. Recall the broad scope of plagiarism: all types of materials can be plagiarized, including unpublished works, even papers you previously wrote.

Another problem concerns the resulting "unfair academic advantage" that is specifically referenced in the University's definition of scholastic dishonesty. If you submit a paper for one course that you prepared and submitted for another class, you are simply better situated to devote more time and energy toward fulfilling other requirements for the subsequent course than would be available to classmates who are completing all course requirements during that semester. In effect, you would be gaining an unfair academic advantage, which constitutes academic dishonesty as it is defined on this campus.

Some students, of course, do recognize one or more of these ethical issues, but still refrain from citing their authorship of prior papers to avoid earning reduced (or zero) credit for the same works in other classes. That underlying motivation further illustrates the deceptive nature of unauthorized multiple submissions.

An additional issue concerns the problematic minimal efforts involved in "recycling" papers (or other prepared assignments). Exerting minimal effort basically undercuts the curricular objectives associated with a particular assignment and the course itself. Likewise, the practice of "recycling" papers subverts important learning goals for individual degree programs and higher education in general, such as the mastery of specific skills that students should acquire and develop in preparing written assignments. This demanding but necessary process is somewhat analogous to the required regimen of athletes, like the numerous laps and other repetitive training exercises that runners must successfully complete to prepare adequately for a marathon.