

22QA360H
Fall, 2010
3 Credits

Quantitative Analysis in Sports
Wednesday, 6:00-8:40pm
Lindner 218

Instructors: Mike Fry and Mike Magazine
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Reading Materials: Reading assignments for this class will consist of portions of:

Moneyball by Michael Lewis

Mathletics by Wayne Winston

Both books are available at the UC bookstore and online. Additional reading materials may be provided through Blackboard.

Course Description: This course examines the use of quantitative methods in sports. The course will introduce a variety of quantitative methods and problem solving methodologies using sports applications as motivating examples. The goal is to help students become more familiar and more interested in problem solving and quantitative methods. Many students already spend much of their time following and participating in sports. We will use sports examples to introduce the power and relevance of formal problem solving and quantitative methods. We will use mathematical techniques from statistics, economics and operations research in our analysis. *Previous background in statistics will be helpful.* Readings will introduce and reinforce these quantitative methods.

Through this course students will:

- ✓ Improve their overall problem solving and critical thinking abilities.
- ✓ Gain an understanding of basic statistical concepts.
- ✓ Develop the ability to recognize, formulate, and analyze decision-making problems in sports.

Grading: Student grades will be determined by class participation, written assignments, an individual presentation and a team project. Students will be expected to come to class prepared and to participate in class discussions. Students will complete several short written assignments throughout the quarter based on class readings. Finally, each student will participate in a group-based project that applies tools and concepts from the course to analyze one particular question of interest from sports.

Reading Assignments: Students will be asked to complete reading assignments each week for class. These assignments will be drawn from a combination of the books mentioned earlier as well as academic and popular press articles. Students will then turn in a short written assignment that asks them to explain and extrapolate on some of the topics covered in the reading assignment. Each student will also individually present their views on the assignment at least once during the quarter. **(40% of total grade)**

Course Project: Students will complete a course project for this class. These will be done in small teams of 3-4 students. Students will be asked to pick one specific question from the application area of sports to analyze. They will then use the quantitative methods and concepts discussed in class to analyze this question. Proposals will be no more than 1 page and will be submitted for approval by October 20. Students will present their analysis to the rest of the class and the instructors near the end of the quarter. Students will be graded based on their analysis, conclusions and clarity of presentation. Project reports are due on December 8 and will be limited to 10 pages plus references and appendices. **(40% of total grade)**

Class Participation: Classroom discussion is a critical component in the assimilation of concepts and all students are expected to have completed the assigned readings before the respective class meeting in order to be prepared to actively participate. All students are encouraged to ask questions and provide comments. Note that attendance is necessary for participation, but it is not sufficient for *active* participation. **(20% of total grade)**

Guest Lecturers: Several representatives from the local sports industry will appear in class to provide guest lectures. Visits to local sports venues may also be arranged.

Course Communication:

We will use Bb to communicate assignments, changes in schedule and other information in the class.

Academic Dishonesty:

The University Rules, including the Student Code of Conduct, and other documented policies of the department, college, and university related to academic integrity will be enforced. Any violation of these regulations, including acts of plagiarism or cheating, will be dealt with on an individual basis according to the severity of the misconduct.

Special Needs Policy:

If you have any special needs related to your participation in this course, including identified visual impairment, hearing impairment, physical impairment, communication disorder, and/or specific learning disability that may influence your performance in this course, you should meet with the instructor to arrange for reasonable provisions to ensure an equitable opportunity to meet all the

requirements of this course. At the discretion of the instructor, some accommodations may require prior approval by Disability Services.

Computer Usage: The use of a computer, specifically Microsoft Excel and internet access, will be required for this course. You are encouraged to make sure that you have access to these, either through the university or your own PC, and to familiarize yourself with the basics of Excel as soon as possible.

Cell Phones/Pagers: All cell phones and pagers must be turned off or put on vibrate during class. If your phone or pager goes off during class, you will be asked to leave.

Tentative Course Schedule:

Class	Date	Topic	<i>Mathletics</i> Reading	<i>Moneyball</i> Reading
1	Sep 22	Introduction to Quant in Sports	Chapters 1-3	
2	Sept 29	Simulation in Sports <i>Guest Speaker: Paul Bessire</i>	Chapter 4	
3	Oct 6	Valuing Baseball Players, WinShares	Chapters 8-9	Preface & Chapters 1-3
4	Oct 13	Decision Making in Football <i>Guest Speaker: Bengals</i>	Chapters 20-21	
5	Oct 20	Decision Making in Baseball <i>Guest Speaker: Reds</i>	Chapter 6 PROJECT PROPOSALS DUE	Chapters 4-6
6	Oct 27	More Decision Making	Chapters 24-26	
7	Nov 3	Probabilities and Streaks	Chapters 11, 13, 16	
8	Nov 10	<i>NO CLASS</i>		
9	Nov 17	Sports Drafts	Chapters 27, 33	
10	Nov 24	<i>Moneyball</i> Discussion, Course Recap		Chapters 9-12 & Epilogue, etc
11	Dec 1	Project Presentations		
	Dec 8	Project Presentations		