



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK 10996

MADN-MATH

5 January 2018

MEMORANDUM FOR MA388 Students, Academic Year (AY) AY18-02, U.S. Military Academy

SUBJECT: MA388 Goals and Operating Procedures

1. **Purpose:** This memorandum announces and specifies material, describes the goals and philosophy, and announces policy and procedures for MA388.

2. **Software (Technology) Used:**

- a. *R Studio*
- b. *Word* – Microsoft
- c. MA388 Course Website and Guide (see below)

3. **Reading Materials:** As MA206 is a prerequisite, we will use the 9th edition of Jay Devore's textbook, *Probability and Statistics for Engineering and the Sciences*. In addition to that we will use the 2nd edition of Jared Lander's textbook, *R for Everyone*. Finally we have access to the 2nd edition of the sabermetrics textbook, *Understanding Sabermetrics*, written by our own Father Costa and two of his colleagues. The course guide will be published on the course website, <https://lms.westpoint.edu/math/ma388/SitePages/default.aspx>

4. **Goals and Objectives:**

a. This course is designed to expand both the modeling and statistical understandings that you gained in MA206. It is assumed that you are both familiar with and capable of applying the statistical concepts covered in MA206. This course will build on previously learned material. In MA388 you will continue to develop your skills by applying statistical techniques to baseball and by developing your sabermetrical reasoning skills, consistent with pedagogical techniques common in an upper-level mathematics course.

b. The objectives of each lesson are indicated on the course homepage. Much of the class time will be used to discuss the history, evolution and significance of statistical metrics within a sabermetrical framework, and how to use R to enhance data visualization. The "seminar" approach used in this course will also provide an atmosphere from which new developments in sabermetrics can and will arise. *It is assumed that you have a passion for both mathematics and baseball.*

c. The goals of this course are listed below.

- i. Use the concepts of statistics and probability learned in MA206.
- ii. Develop proficiency with the open source statistical program R in order to create statistical models and communicate results through visual tools.

- iii. Attain, clean, join, and manipulate data in order to prepare it for statistical analysis.
- iv. Use advanced modeling and statistical concepts to analyze baseball and other data.
- v. Appreciate the relevance of baseball in utilizing statistical methods by investigating application problems and presenting results.
- vi. Communicate assumptions, models, and results using technical language in both written and oral formats.
- vii. Develop the skills to critically synthesize statistical data and analysis from all types of media to in order to develop rational, well informed conclusions and opinions about real world issues.

5. **Evaluation:** Your performance in this course will be evaluated both in and out of class.
- a. The following table lists the requirements:

<u>Requirement</u>	<u>Points</u>	<u>Weight (%)</u>
INSTRUCTOR POINTS	100	10
WPR (2)	400	40
FINAL PROJECT	200	20
TEE	300	30
<i>TOTAL</i>	<i>1000</i>	<i>100</i>

- b. Final course grades will follow this Department's standing guidelines. Scores in the listed ranges are guaranteed, with refinements made for plus and minus grades.

<u>Percentage Achieved</u>	<u>Grade</u>
$90\% \leq x \leq 100\%$	A
$80\% \leq x < 90\%$	B
$70\% \leq x < 80\%$	C
$65\% \leq x < 70\%$	D
$x < 65\%$	F

6. **Chain-of-Command:** If you require clarification as to *any aspect of the course*, the approved chain-of-command should be followed:

- a. Course Director: CPT Jay Sharritt – TH 221 – x8132
- b. Program Director: LTC Watts – TH 239A – x2276.
- c. Department of Mathematics Head: COL Steve Horton – TH 238a – x5285.

7. Finally, this is your mathematics education. Baseball creates a sense of passion in many of us to root for a certain player or team, but there must be some underlying statistical basis for “objectively” comparing players, leagues, ERAs, etc. A successful leader uses all possible resources to accomplish the mission. You are encouraged to use all possible resources to be successful in this course.

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8. Point of contact for this memorandum is the undersigned at (845) 938-8132.

JASON T. SHARRITT
CPT, SC/FA-49
Course Director, MA388