SYLLABUS FOR MTH U117 Spring 2005

Instructor: **Jane DeVoe**
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Office Hours: Mon. , Weds. 11:30 - 12:30 or by appointment

Course Objectives: This course is designed to develop problem-solving skills while learning to apply mathematics to real life situations. Mathematical concepts to be studied: normal distribution and standard deviation; graphs of linear and non-linear functions, the concept of derivative, derivatives for exponential functions, *e*; topics in probability, binomial distributions, central limit theorem, polling theory.

Styles of Learning: This course will make extensive use of collaborative groups, although grading will be based on individual work. It is designed for the student who enjoys hands-on activities, social interaction and pondering mathematical questions.

Books: *The Pit and The Pendulum*, *Small World*, and *Pollsters Dilemma*. Purchase packet at Gnomon Copy. You will need to bring the unit under investigation to class everyday

Materials: A graphing calculator is required for this course equivalent to the TI 83. You will need to bring this to class everyday. You will also need graph paper.

Attendance: Daily attendance is required. Since emergencies may arise, students are allowed 4 absences. That is 4 absences **no matter what the reason**. For every absence greater than 4 your final grade will be lowered a grade. For instance someone with a B- average and six absences will have their grade lowered by two to a C. I will not be reteaching lessons for those who miss them.

Cell Phones: Keep them turned off!

Help: Besides my office hours, assistance is available at the Academic Assistance Center Sign-up for appointments in 102 Cahners Hall

Grading: Daily Homework (due on time, 4 late accepted) 10%
Problems of the Week (POWs) (on time and typed) 20%
Portfolios (on time and typed) 20%
Tests 25%
Final 25%

Late Work: Four late home works are allowed. POWs will not be accepted more than one class period late. Portfolios will not be accepted late.

Proficiency Requirement: Students passing this course with a C or better will satisfy the College of Arts and Sciences Category I mathematics requirement. Students who are seeking to satisfy this requirement but earn less than a C have two choices : 1) retake MTH 117 earn a C better, or 2) take MTH 115 and receive a C or better.

Finals: Our final is on ***April 20*** at 3:30
No student will be given a request for a special final exam unless it is due to a registrar created conflict.

Note: It is your responsibility to be aware of any changes to this syllabus that are announced in class. If you have any concerns about the course that cannot be resolved with me, please see Prof. King in 447 Lake, x5679. It is the University policy that no grade, including an incomplete, can be changed after one year. Exceptions must be authorized by the Academic Standing Committee.

Academic Honesty: Cheating will not be tolerated. During exams, cell phones must be put away and you cannot share calculators. Please refer to the University's policies on cheating and related disciplinary actions that are detailed in your Student Handbook. If you get help from another individual on the POWs or portfolios, make sure your write-up is in your own words. You will be randomly called on to explain your work, so if you get help, make sure you understand it. I will be monitoring the Internet and any plagiarism will be cause for me to file a case against you. Incidents of cheating will be reported to the Office of Judicial Affairs, which can lead to suspension or expulsion from the University.

CLASSWORK	**HOMEWORK (due next class unless specified)**
Jan 5 The Unit Question p. 2-5	a) Initial Experiment p. 5 b) POW Are you Ambidextrous? Due Jan. 20
Jan 6 Time is Relative p. 6 Your Pulse p. 6	Flipping Coins p.7
Jan 10 What's Rare p. 8-9 Normal Distribution and Standard Deviation (of Pulse data) by hand p.10-13	Penny Weight p. 14
Jan 12 Standard Deviation using TI 83 (of Pulse and Timing) p.15	a) Deviation p. 16 b) Use Standard Deviation on Penny Weight p. 14 c) POW
Jan 13 The Standard Pendulum p.17	a) Conclusions about the Standard Pendulum p.18 b) More on Standard Deviation p.20
Jan 19 Pendulum Variations p.19	More on Standard Deviations p.20
Jan 20 Bird Houses p.21-23 Using the calculator to graph points and curves, using table and window Start Graphing Free-For –All p. 27-28	a) Finish Graphing Free For All b) POW The Farmer DUE Feb. 2

Jan 24 Graphing Free-For-All summary	Graphs in Search of Equations I and II p. 27-28
Jan 26 The Period and the Length p.30 The Thirty Foot Prediction p.41	a) The Brake p. 31 b) Unit Portfolio p. 32 due Oct 4
Jan 27 Building the 30 foot Pendulum Review for test	
Jan 31 Unit Test	

Feb 2 Unit Question for Small World p. 34	POW
Feb 3 How Many People? p. 35	Eggs and Amoebas p. 36
Feb 7 The Rescue p. 37	Doctor's Orders p.40
Feb 9 On A Tangent p. 38-39	
Feb 10 Exponential Slopes p. 41	The Derivative of x^2 p. 42
Feb 14 Find that Base! P. 43 Logarithm Review p. 44	Natural Logarithms p. 45
Feb 16 Generalized Exponential Slopes p. 46	Instantaneous Rate of Change p. 48
Feb 17 California and Exponents p. 47	Unit Portfolio due Nov 1
Feb 21 Return to Small World Isn't It	
Feb 23 Review	
Feb 24 test	

Mar 7 Pollster's Dilemma; Sampling Seniors p. 52-52	Pizza Combinations p. 54
Mar 9 Finish Sampling Seniors; Ice Cream Combinations and Permutations p. 54-55	Combinations and Permutations in Sports p. 58
Mar 10 Probability p. 59 Play Ball p. 60	Probability p. 61
Mar 14 The Theory of the Three-Person Poll p. 62-63	Graphs of the Theory p. 64
Mar 16 The Central Limit Theorem and Graphing Distributions; Normal Area p. 66-72	Middletown Musings p. 73
Mar 17 A Plus for the Community p. 74	Mean and Standard Distribution for Probability Distributions p. 75-76
Mar 21 The Search is On! P. 77-78	Putting Your Formulas to Work Part II p. 80
Mar 23 From Numbers to Proportions p. 81 Mar 24 Different p, different s p. 82	Is Twice As Many Twice As Good p. 84
Mar 28 The Worst Case Scenario p.83	POW Analyzing Your Own Poll due Apr 6
Mar 30 What Does It Mean p.85 Mar. 31 Pollster's Dilemma Revisited p. 88	

Apr. 4 review for test	
Apr. 6 test	Unit Portfolio due Apr. 11
Apr. 7 POW presentations	
Apr. 11 Review for final	

April 13 Catch up day