

SYLLABUS FOR MTH U117 – sequence B – fall 2005

Instructors and Office Hours:

Professor Carla Oblas, 373- 4487, e-mail c.oblas@neu.edu, 532 Nightingale Hall
Office hours: Mon, Wed and Thurs 1:30-2:30 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 3 absences. That is 3 absences **no matter what the reason**. Students who have more than four absences will be required to withdraw. **There are no make up tests. Do not miss a test!**

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, but they must be presented before the portfolio is due. POWs and Portfolios are due on time. For every **day** they are late your grade will go down a half step (B to B- etc). If your printer isn't working you can e-mail me the work or hand in a disk. If your are sick, you can e-mail me the work and hand in any attachments when you return.

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 MTHU117 earn a C or better, or 2) take MTHU115 and receive a C or better.

Finals: Our final is on December 15 at 10:30 am . No student will be given a request for a special final exam unless it is due to a registrar created conflict. Do not make travel plans that conflict with the final exam.

Note: It is your responsibility to be aware of any changes to this syllabus that are announced in class. Students are responsible for all information given when they are absent.

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. All work submitted must be your own. If you get help from another individual on the POWs or portfolios, your write-up needs to be in your own words, and you must identify who you worked with. 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 complaint against you.

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. Incidents of cheating will be reported to the Office of Judicial Affairs, which can lead to suspension or expulsion from the University.

<u>CLASSWORK</u>	<u>HOMEWORK</u> <u>(due next class unless specified)</u>
Sept 7 The Unit Question for Pit and the Pendulum p. 2-5 Time is Relative p. 6 Your Pulse p. 6	a) Building a Pendulum p. 5 POW Moving Game Pieces p. 113 due Sept. 14 c) Flipping Coins p.7
Sept 12 What's Rare p. 8-9 Normal Distribution and Standard Deviation (of Pulse data) by hand p.10-13 Standard Deviation using TI 83 (of Pulse and Timing) p.15 The Standard Pendulum p. 17	a) Penny Weight p. 14 b) Deviation p. 16 c) Conclusions about the Standard Pendulum p. 18
Sept 14 Pendulum Variations p.19 Bird Houses p.21-23 and using the calculator to graph points, using table and window p. 22-23 Start Graphing Free-For-All p. 24-25	a) More on Standard Deviation p.20 b) Graphs in Search of Equations I p.26 c) POW Share and Share Alike p. 105-106 due Sept 21
Sept 19 Finish Graphing Free-for All p.27-28 and Graphing summary p. 28 Using you graphing calculator to find the equation of best fit p. 29	a) Tables in Search of an Equation p. 27 c) The Brake! P. 31
Sept 21 The Period and the Length p.30 Review for test	a) Portfolio p. 32 due Sept 29
Sept 26 Building the 30 foot Pendulum Unit test	

Sept 28 Unit Question for Small World How Many People? The Rescue p 34-36	Eggs and Amebas p.36 POW The Farmer p.94 due Oct 17
Oct 3 The Rescue p.37 On a Tangent p. 38	Doctor's Orders p.39 Oil Spill p. 40
Oct 5 Exponential Slopes p.41	The Derivative of x^2 p.42
Oct 12 Find That Base! P.43 Logarithm Review p.44	Natural Logarithms p.45
Oct 17 Generalized Exponential Derivatives p. 46 California and Exponentsp.47	Instantaneous Rate of Change p. 48
Oct 19 Return to Small World Isn't It p. 49 Review Unit	Unit Portfolio p. 50 due Oct 27th
Oct 24 Test	

Oct 26 Pollster's Dilemma; Sampling Seniors; p. 52-53	a) Pizza Combinations p. 54 b) Throw back the Little Ones p.55
Oct 31 Ice Cream Combinations and Permutations; p.56-57 Probability p.59	a) Combinations and Permutations in Sports p.58
Nov 2 Play Ball p. 60 The Theory of Three-Person Polls p. 62-63	a) More Probability p. 61
Nov 7 The Central Limit Theorem Graphing Distributions Normal Areas p. 66-72 Middletown Musings p. 73	Graphs of the Theory p. 64
Nov 9 A Plus for the Community p.74 Mean and Standard Distribution for Probability Distribution p.75-76 The Search is ON! p.77-78	Putting Your Formulas to Work p POW Let's Vote due Nov 30 p.117
Nov 14 From Numbers to Proportion p.80 The Worst Case Scenario p.81-83 P vs \hat{p} p. 82	Is Twice As Many Twice As Good? P.84
Nov 16 What Does It Mean? P. 85 Pollster's Dilemma Revisited p.88	
Nov 21 Review for test	Portfolio p. 89 Dec 5
Nov 28 Test	

Nov 30 Poll presentations
Dec 5 Review for final
Dec 7 th make-up day as needed