SYLLABUS FOR MTH U117 – sequence 4 – spring 2006

Instructors and Office Hours:
Professor Carla Oblas, 373- 4487, e-mail c.oblas@neu.edu, 532 Nightingale Hall
Office hours: Mon, Thurs 10:30-11:30, Wed 12:30-1:30, 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 the Northeastern Bookstore. 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 need it by the second class meeting.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 Math Tutoring Center in room 540 B Nightingale.

Grading: Daily Homework (due on time, 3 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: Three late home works are allowed, but they must be presented before the portfolio is due. POWs and Portfolios are due on time, they will not be accepted more than one class meeting late. If your printer isn't working you can e-mail me the work or hand in a disk. If you are sick, you can e-mail me your work and hand in 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 better, or 2) take MTHU115 and receive a C or better.

Finals: Our final is on April 27 at 3:30. 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. Eigen 373-5647, 527 Lake Hall. 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.

CLASSWORK	**HOMEWORK** **(due next class unless specified)**
Jan 9 The Unit Question for Pit and the Pendulum p. 2-5	Building a Pendulum p. 5 POW Five Bales p. 110 due Jan 18
Jan 11 Time is Relative p. 6 Your Pulse p. 6 Start What's Rare p. 8-9	Flipping Coins p.7
Jan 12 finish What's Rare p. 8-9 Normal Distribution and Standard Deviation (of Pulse data) by hand p.10-13	Penny Weight p. 14 intuitively
Jan 18 Standard Deviation using TI 83 (of Pulse and Timing) p.15	a) Penny Weight p. 14 using Standard Deviation b) Deviation p. 16
Jan 19 The Standard Pendulum p. 17	Conclusions about the Standard Pendulum p. 18 POW Who Will Win the Prize p. 92-93 due Jan 30
Jan 23 Pendulum Variations p.19	More on Standard Deviation p.20
Jan 25 Graphing Free-for All p.27-28	Graphs in Search of Equations p.26
Jan 26 Graphing Summary p.28	Tables in Search of an Equation p. 27
Jan 30 The Period and the Length p.30	The Brake! P. 31 Portfolio p. 32 due Feb 6
Feb 1 Building the 30 foot Pendulum Review for test	
Feb 2 Unit test	

Feb 6 Unit Question for Small World p. 34	Eggs and Amoebas p.36 POW Security p. 115 due Feb 16
Feb 8 How Many People? p 35	
Feb 9 The Rescue p. 37	Doctor's Orders p.39
Feb 13 On a Tangent p. 38	Hand-out
Feb 15 Exponential Slopes p.41	The Derivative of x^2 p.42
Feb 16 Find That Base! P.43 Logarithm Review p.44	Natural Logarithms p.45
Feb 22 Generalized Exponential Derivatives p. 46	Instantaneous Rate of Change p. 48
Feb 23 California and Exponents p.47	Unit Portfolio p. 50 due March 13
Feb 27 Return to Small World Isn't It p. 49	
March 1 Review Unit	
March 2 Test	

March 13 Pollster's Dilemma; Start Sampling Seniors; p. 52-53	Throw back the Little Ones p.55
March 15 Finish Sampling Seniors Ice Cream Combinations and Permutations; p.56-57	Pizza Combinations p. 54
March 16 Probability p.59 Play Ball p. 60	Combinations and Permutations in Sports p.58
March 20 The Theory of Three-Person Polls p. 62-63	More Probability p. 61
March 22 The Central Limit Theorem Graphing Distributions Normal Areas p. 66-72	Graphs of the Theory p. 64
March 23 Middletown Musings p. 73	Hand-out
March 27 A Plus for the Community p.74 Mean and Standard Distribution for Probability Distribution p.75-76	Putting Your Formulas to Work p 80 POW Let's Vote On It p. 116 due April 12
March 29 The Search is ON! p.77-78	
March 30 From Numbers to Proportion p.80 The Worst Case Scenario p.81	Is Twice As Many Twice As Good? P.83
April 3 P vs $\hat{p}$ p. 82 What Does It Mean? P. 85	Portfolio due April 19 p. 89
April 5 Pollster's Dilemma Revisited p.88	
April 6 Review for test	
April 10 Test	
April 12 POW presentations	
April 13 and 19 Review for the final	